

# Report to the Manitoba PUB

## Review of Manitoba Hydro Financial Targets and the 2017/18 and 2018/19 GRA

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## 1 **Executive Summary**

2 On May 5, 2017, Manitoba Hydro applied to the Manitoba Public Utilities Board for electricity rate increases of 7.9%  
3 for both 2017/18 and 2018/19.

4 In support of this application, Manitoba Hydro provided a substantial body of information on the company's financial  
5 performance, forecasts, and financial targets and goals. In particular, the application referenced that the Manitoba  
6 Hydro Electric Board has set a goal to achieve a target Debt to Equity Ratio of 75:25 by March 31, 2027. In order to  
7 achieve this goal, a series of substantial rate increases would be required over the coming years.

8 This Report addresses three critical issues:

- 9 • Why are financial targets relevant to rate-setting for Manitoba Hydro?
- 10 • Should the Debt : Equity Ratio be the primary financial target that is taken into account when setting rates  
11 for the future?
- 12 • Assuming the Debt : Equity Ratio is the primary target, should rates be set so as to achieve that target by  
13 March 31, 2027?

14 Manitoba Hydro's governing legislation does not specify a capital structure for the company. It is organized as a  
15 non-share capital corporation, to be operated at cost. However, the maintenance of reserves for various purposes  
16 are allowed, which gives the company flexibility in determining its capital structure. The Manitoba Public Utilities  
17 Board is free to take into account the need for reserves in its deliberations on rates, but is not required to approve of  
18 any specific level of reserves.

19 Manitoba Hydro is fairly unique as a government-owned, pure cost recovery electricity utility which is mandated to  
20 produce and sell electricity for export as well as for domestic purposes. This sets it apart from its peers in North  
21 America, none of whom have that exact combination of characteristics. While the experience of other utilities may be  
22 used as a guide, the particular nature of Manitoba Hydro means that there is no pattern that can simply be followed in  
23 determining how best to address the issues raised in the application. Regardless, government-owned utilities across  
24 North America exhibit a wide variety of financial profiles, lending support to the proposition that Manitoba has the  
25 flexibility to pursue its own course.

26 One of the principal reasons to carefully track and manage financial performance is to ensure continued access to  
27 the capital markets. Manitoba Hydro is a capital intensive business, and it is in the midst of a massive building  
28 program, for which it requires a significant amount of debt. While the company's debt is issued by the Province of  
29 Manitoba and on-lent to Manitoba Hydro, nonetheless the company must address itself to the capital markets to  
30 ensure that it does not weaken or harm the credit-worthiness of the Province of Manitoba.

31 The primary concern of lenders is the risk that a borrower will default on a loan. In order to gauge this risk, capital  
32 markets participants closely examine the financial history and circumstances of potential borrowers to determine their  
33 credit-worthiness. Manitoba Hydro, and the Province of Manitoba, are each regularly scrutinized and reported on by  
34 various credit rating agencies, and of course bond investors themselves monitor the behaviour and results of both the  
35 company and the Province in real time, as news and events instantly affect the bond trading market. It is apparent  
36 from reading various financial market reports that a primary focus is on the expected sufficiency of cash flows to  
37 satisfy debt obligations. While the capital structure of a prospective borrower like Manitoba Hydro is important, it

1 appears to be a secondary issue for the capital markets. This raises questions about the centrality of the Debt to  
2 Equity Ratio in Manitoba Hydro's application: if the capital markets are focused on other financial metrics, then why  
3 not make those metrics central to rates, instead of the Debt to Equity Ratio?

4 Rates must be set prospectively, at a level that is expected to cover the costs of the utility. However, Manitoba  
5 Hydro's revenues depend very much on unpredictable water inflows to the hydroelectric facilities that the utility owns  
6 and operates. Other uncertainties include interest rates on the utility's outstanding debts, export prices for the power  
7 sold abroad, and the ultimate cost of the various construction projects currently underway. These risks mean that  
8 Manitoba Hydro must take a sophisticated approach to managing its finances. In addition, the variability of all of  
9 these factors raises questions about how the PUB should be setting Manitoba Hydro rates, and the degree of  
10 flexibility there should be in changing the level of those rates over time.

11 The Manitoba PUB must not only operate within the confines of its governing legislation and that of Manitoba Hydro,  
12 but it can and should call on the enormous body of practice and jurisprudence concerning regulated utilities that has  
13 been developed across North America over the past hundred years or more. A number of principles have emerged  
14 over the years which seek to clarify what may be considered "just and reasonable" in the setting of utility rates. An  
15 over-arching concern is to balance the needs of customers and the utilities themselves, so that services can be  
16 provided in a manner, and at a price, that is fair, economically efficient, prudent, predictable and stable.

17 Considering Manitoba Hydro's rate application in the light of regulatory principles, it becomes apparent that the  
18 urgency with which the utility wishes to achieve its targeted Debt to Equity Ratio makes it difficult to maintain a fair  
19 distribution of burden on ratepayers over time. The sharp increase in rates, designed ostensibly to protect ratepayers  
20 from undue financial risks and burdens in the future, instead appears to create significant burdens for ratepayers in  
21 the short term, with uncertain utility to ratepayers later. Alternative, more modest rate increases may be sufficient to  
22 satisfy the needs of the capital markets, while spreading burdens more equally across ratepayers over time. In the  
23 event that financial distress arises from the actualization of a risk, then rates could be increased further.

24 In short, the answers to the three questions posed above can be summarized in the following way:

- 25 • Financial targets are important for rate-setting, both because they indicate the general health of the utility,  
26 which must be a factor in rate-setting, and because they are critical to having access to capital markets.
- 27 • There appears to be significant doubt as to whether rate-setting should be driven by the Debt to Equity  
28 Ratio. This particular financial measure is of secondary importance to the capital markets, and the emphasis  
29 placed on it does not appear to lead to balanced, fair results for ratepayers.
- 30 • A goal to reach a financial target by a fixed date does not appear to take into account the ever-changing  
31 risks faced by the utility, and the need to balance those risks against the interests of ratepayers over time. It  
32 may be more advisable to focus on different financial metrics, and seek to achieve and maintain them on  
33 some form of rolling-forward basis, which might provide the Public Utilities Board with the flexibility it needs  
34 to find a fair and reasonable balance in the setting of rates.

## 1 **Morrison Park Advisors**

2 MPA is an independent, partner owned investment banking advisory firm. We primarily advise clients on mergers  
3 and acquisitions, equity and debt capital raises, divestitures and restructurings. In addition, we provide formal  
4 valuations, fairness opinions, contract negotiation services, advice to special committees of boards of directors,  
5 advice on initial credit ratings, expert testimony before courts and regulatory bodies, policy development, and market  
6 analysis. Our ability to deliver top tier financial advisory services is based on decades of combined experience and  
7 expertise developed at some of Canada's leading investment banks, while serving many of Canada's largest and  
8 most sophisticated corporate clients as well as federal, provincial and municipal governments and quasi-government  
9 entities.

10 Our areas of specialty include utilities, infrastructure and power; mining; real estate and technology. In the electricity  
11 sector, MPA has direct and recent experience on a number of transactions and other advisory assignments involving  
12 electricity assets and has detailed knowledge and experience with this market, its participants and how they operate.

13 Information on the team members contributing to this report, as well as the scope of our assignment is attached in  
14 Appendices F through J.

15 For more information on MPA, please visit our website at [www.morrisonpark.com](http://www.morrisonpark.com).

# 1. Manitoba Hydro Request

## A. Original Request (May 5, 2017)

By way of formal application for electricity rates, Manitoba Hydro requested that the Manitoba Public Utilities Board (“PUB”) approve:

- An across-the-board rate increase of 7.9% to be effective on August 1, 2017;
- An across-the-board rate increase of 7.9% to be effective on April 1, 2018; and
- A number of approvals relating to adjustment of specific rate classes, recovery of regulatory deferral accounts, amortization periods, and other technical matters.

Based on these requests, it could be expected that Manitoba Hydro would return to the PUB sometime in mid-to late-2018 with a request for new rates as of April 1, 2019.

11

## B. Implicit Requests Inherent to the Application – Financial Targets and Goals

The request for rate increases reflects current assumptions about a range of expected revenue and cost drivers. Forecasts for domestic demand, export prices, operating expenses, interest costs and required capital expenditures were included in the application, as required, and are subject to scrutiny by the PUB to support the need for the requested rate increases.

Beyond forecasts of future operating and economic variables, however, the application provides substantial information about Manitoba Hydro’s financial targets. Moreover, the application contends that the need to meet these targets within a specific period of time helps to justify the requested rate increases.

Manitoba Hydro focuses on three main tests for financial health:

- Debt to Equity Ratio, with a target level of 75:25;
- Interest Coverage Ratio, with a target level of 1.8x;<sup>1</sup> and
- Capital Coverage Ratio, with a target level of 1.2x.

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<sup>1</sup> Note that historically Manitoba Hydro calculated its “interest coverage” using an EBIT-based formula. In 2015 Manitoba Hydro changed the formula, and began using a calculation that employs “EBITDA”, instead of “EBIT”. In its materials, the new ratio is sometimes referred to simply as the “Interest Coverage Ratio”, and sometimes as the “EBITDA to Interest Coverage Ratio” in order to differentiate the new formula from the old formula (in documents from previous rate hearings, “interest coverage ratio” always referred to the “EBIT”-based calculation, hence the possible source of confusion). Please note that in this Report, all references to “Interest Coverage Ratio” refer to the new, post-2015 formulation. The older calculation is a different metric, and is not employed anywhere in this Report.

1 *Debt to Equity Ratio*

2 Manitoba Hydro calculates its Debt to Equity Ratio as follows:

3 
$$\frac{\text{(Total Net Debt = Long-term Debt - Sinking Fund Balances + Short-term Debt - Short-Term Investments)}}{\text{(Retained Earnings + Unamortized Customer Contributions + Accumulated Other Comprehensive Income + Non-controlling Interest + Total Debt)}}$$

5 While most of the elements in the calculation are familiar, two notable elements are “Unamortized Customer  
6 Contributions” and “Accumulated Other Comprehensive Income”.

7 The former refers to contributions in aid of construction that were received from customers for capital projects, and  
8 that are being amortized in parallel to the depreciation of the capital items that they helped to pay for. In some  
9 jurisdictions, utilities remove contributions in aid of construction from the value of assets, and therefore also exclude  
10 these amounts from the liabilities/equities side of the balance sheet. Since Manitoba Hydro does not exclude  
11 contributions from the value of their assets, then there must be corresponding liabilities which are amortized over  
12 time, and Manitoba Hydro has reflected this in the Debt to Equity Ratio.

13 “Accumulated Other Comprehensive Income” has taken a more prominent role since Manitoba Hydro adopted the  
14 IFRS accounting standard in its fiscal year ending March 31, 2015. This balance sheet item includes transactions  
15 which are not part of the normal operations of the company, and often relate to unrealized gains or losses on such  
16 things as foreign exchange transactions, hedging arrangements and pension plans. Typically, such gains or losses  
17 are recorded because the fair value of a financial instrument has changed since it was first arranged, however that  
18 instrument is still outstanding as of the end of the financial year (hence the gains or losses are “unrealized”).  
19 Significantly, for Manitoba Hydro, the amounts in this item grew substantially (and became an accumulated loss  
20 instead of a gain) upon adoption of IFRS accounting standards, and have mounted since. The result is that the  
21 calculation of the Debt to Equity Ratio would be different if Manitoba Hydro were using CGAAP or USGAAP  
22 accounting standards, as opposed to IFRS. In any case, Manitoba Hydro has predicated all of its calculations and  
23 scenario-building on the continued use of IFRS accounting, so this treatment will be used.

24 The Manitoba Hydro Electric Board has taken the position that the company should strive to achieve the Debt to  
25 Equity Ratio target of 75-25 by the end of the fiscal year ending March 31, 2027. Based on the provided analysis and  
26 forecasts, and assuming the accuracy of all assumptions made in the application, the original application states that  
27 there is a 50% probability of achieving this goal, if domestic rates are increased by 7.9% per year for three additional  
28 years beyond the two increases for which Manitoba Hydro formally applied, followed by five years of 2% domestic  
29 rate increases.

30 This ten-year rate path, and its relationship to the Debt to Equity Ratio target, is critical to the application as a whole.  
31 If the Debt to Equity Ratio target were not 75-25, or if the goal was to achieve that target over a longer timeframe,  
32 then rate increases of 7.9% likely would not have been requested.

33 In addition, a ten-year rate path of 7.9% increases for five years followed by 2% increases for five years is not the  
34 only possible rate path that would result in the achievement of 75% debt target by March 31, 2027. Manitoba Hydro  
35 could have requested even annual rate increases over the entire period, or could have suggested more modest  
36 increases for the first several years of the period, followed by larger increases later, or any combination of various  
37 mathematical possibilities.

1 In the broader context facing Manitoba Hydro (which will be discussed further in Section 3), what does it mean to  
 2 achieve a ratio of 75:25? In a literal sense, it means that the book value of the assets in the company are significantly  
 3 greater than its outstanding debt. Manitoba Hydro has indicated that it believes this to be a sign of ample “financial  
 4 strength”, and that if it has achieved that goal, it will have enhanced flexibility to issue more debt, if circumstances  
 5 arise where that might be necessary.

6

### 7 *Interest Coverage Ratio*

8 Manitoba Hydro calculates its Interest Coverage Ratio as follows:

$$9 \frac{\text{Net Income} + \text{Depreciation Expense} + \text{Finance Expense} + \text{Capitalized Interest}}{10 \text{Finance Expense} + \text{Capitalized Interest}}$$

11 Manitoba Hydro sometimes refers to this calculation as an “EBITDA : Interest Coverage Ratio”, in order to distinguish  
 12 it from an older calculation that was also called “Interest Coverage Ratio”, but which was calculated differently. The  
 13 exact formulation that Manitoba Hydro is using now, described above, is not identical to what is commonly  
 14 considered an EBITDA : Interest calculation (Earnings Before Interest, Depreciation and Amortization, as compared  
 15 to Interest). In Manitoba Hydro’s formulation, it is important to note that Net Income includes a number of special  
 16 items (such as recognition of deferred revenues and net movement of regulatory balances) which are not always  
 17 included in the more common EBITDA calculation. This technicality can be ignored in practice, however.

18 The Interest Coverage Ratio, as calculated by Manitoba Hydro, is often considered an important metric when  
 19 assessing the credit-worthiness of an enterprise, because it provides information about the sufficiency of cash flow to  
 20 cover interest costs. However, it should be noted that customer revenue (and many other items) is recognized on an  
 21 accrual basis (i.e., when billed) as opposed to on a cash basis (when payment is actually received). As a result, while  
 22 this ratio serves as an indicator of the sufficiency of cash flow, it is an “accounting” measure and not a true “cash  
 23 flow” measure of the results of the period for which the calculation is being made.

24 Capitalized interest represents the amount of interest accrued during the year which will ultimately be transferred to  
 25 asset accounts associated with capital goods currently in construction.<sup>2</sup> When new capital goods take more than one  
 26 year to construct, they must be financed through debt issuance (or equity contributions, in the case of utilities which  
 27 have an equity provider who contributes capital). Since the costs associated with such construction projects should  
 28 not be passed on to ratepayers until such time as they are in use (“used and useful”), the interest associated with that  
 29 debt should not form part of the annual expenses of the regulated business.

30 Notably, according to the IFRS accounting rules that Manitoba Hydro relies on, the amount of capitalized interest is  
 31 calculated not on the basis of the actual cash interest costs associated with the construction project (which might be  
 32 the case if a project were undertaken by a special purpose entity that arranged construction financing, for example),  
 33 but instead based on the average cost of debt for the corporation and the average cost of the construction projects  
 34 outstanding for the year. Since the average cost of Manitoba Hydro debt is influenced by all of the debt issued in the  
 35 past, and past debt issues were more expensive than debt incurred today, the average cost of debt for Manitoba  
 36 Hydro is actually higher than the real cash cost of construction debt that would be required for projects currently in

<sup>2</sup> On the Consolidate Statement of Cash Flows, the amount of capitalized interest is buried in the Additions to Property, Plant and Equipment, and does not appear in the Cash Flow from Operating Activities line item.



1 progress. This means that more debt interest is being capitalized than was actually “caused by” the construction  
2 projects underway, strictly speaking. This serves to reduce finance expense in the current year, which increases net  
3 income now, while deferring more interest to be recovered from ratepayers in the future. Note, however, that if  
4 interest rates were to increase, such that past rates were lower than current rates, the opposite situation would  
5 obtain, so the relationship between current finance expense and capitalized interest is at least somewhat based on  
6 happenstance.

7 Despite the subtleties associated with capitalized interest, for the purposes of the Interest Coverage Ratio, the  
8 addition of finance expense and capitalized interest can be understood to approximate the net cash cost of debt  
9 interest for the year (note that Finance Expense is not just interest paid on long and short-term debt, but also  
10 includes offsets from interest income received from short-term investments, hence this is a “net” total).

11 What does it mean that the target is 1.8x? In this case, operating cash flows before interest charges would be greater  
12 than interest charges. The remaining 0.8x of funds after paying interest charges could be used to invest in new  
13 capital equipment, or to pay down debt principle (bonds that may be coming due). This measure alone does not  
14 clarify whether the company’s debt is increasing, since there is no information captured in this metric about the size  
15 of capital expenditures (if capital expenditures are greater than 0.8x Net Finance expense, then Manitoba Hydro will  
16 have to borrow additional funds, but if capital expenditures are less than 0.8x Net Finance Expense, then the  
17 corporation could actually retire some debt principal). By the same token, this ratio provides no information on  
18 whether the Debt : Equity Ratio is rising or falling. It would be necessary to know both the size of the annual capital  
19 investment and the size of depreciation in order to calculate the impact on the debt ratio. Nevertheless, if this ratio  
20 were at a 1.8x level, creditors would be comfortable that the business is producing enough cash flow to service  
21 outstanding debts.

22 It may also be instructive to note the limitations of this calculation with respect to cash flow. There are many possible  
23 measures of cash flow, and this is only a variant of one of them. Some measures, such as “Free Cash Flow” are  
24 focused on understanding more about the actual cash funds available from a company after all of its expenditures  
25 have been taken into account (including capital expenditures and non-cash items such as net working capital).  
26 Others, like “Discretionary Free Cash Flow” make some distinctions about which planned expenditures are absolutely  
27 required, versus those which are optional. Depending on the specific objective of an analysis, each different cash  
28 flow measure may be useful.

29 In the application, Manitoba Hydro does not emphasize this cash flow metric as much as it does the Debt : Equity  
30 Ratio, and does not address other variants of cash flow metrics and their uses.

31

### 32 *Capital Coverage Ratio*

33 Manitoba Hydro defines its Capital Coverage Ratio as follows:

$$\frac{\text{Cash Funds From Operations}}{\text{Capital Expenditures (excluding Major New Generation and Transmission Projects)}}$$

36 Notably, when calculated on a retrospective basis, “Cash Funds From Operations” is an actual measure of real cash  
37 flows, and not an approximation including non-cash items such as non-cash working capital, deferral accounts,  
38 regulatory accounts, accruals, etc. On a prospective basis, however, for the purposes of modeling, most such

1 nuanced differences between cash and non-cash accounts are generally ignored, since modeling them would be an  
2 unnecessary and time consuming complication.

3 Excluding “Major New Generation and Transmission Projects” is an extremely important element of the calculation. In  
4 effect, this measure is indicating the sufficiency of actual cash flows from operations to pay for maintenance capital  
5 expenditures, and expenditures required to manage “normal” as opposed to “major” or “strategic” growth in the  
6 system. This distinction makes the calculation somewhat arbitrary, since Manitoba Hydro can redefine at any time, by  
7 an internal policy change, whether a given project is sufficiently “major” to be excluded.

8 This metric is not a typical part of financial analysis, and its value is somewhat obscure. Certain typical financial  
9 measures do take into account capital expenditures (such as “Free Cash Flow”), but determining whether funds from  
10 operations are sufficient to pay for capital expenditures does not in itself indicate much about the company. Knowing  
11 the amount of Cash Funds from Operations generated by a company is often useful when compared to interest  
12 charges or debt (in which case it becomes a cash flow metric), since debt providers often wish to understand whether  
13 a company has sufficient cash to make good on debt obligations. Since interest charges are paid before new capital  
14 expenditures, it is not clear what purpose is served by aiming for cash flows to be 0.2 times in excess of planned  
15 capital expenditures? Unless debt interest charges are very small, they will in all likelihood be greater than 0.2 times  
16 capital expenditures (especially in a large, capital intensive electricity business like Manitoba Hydro). Moreover,  
17 knowing that cash flows are slightly larger than planned capital expenditures does not provide any insight into the  
18 direction of the Debt : Equity Ratio or the Interest Coverage Ratio, because too many other values are missing from  
19 the calculation of the Capital Coverage Ratio. In short, this metric qualifies as information, but its usefulness is  
20 somewhat questionable.

21 In the application, Manitoba Hydro does not emphasize the Capital Coverage Ratio as a financial measure related to  
22 rate-making as much as it does the Debt : Equity ratio.




1 **C. Revised Materials Based on the Interim Rate Decision**

2 By Order 80/17, the PUB granted an interim rate increase of 3.36% to Manitoba Hydro, commencing on August 1,  
3 2017. The PUB denied Manitoba Hydro's request for an increase of 7.9%.

4 **As a result of this decision, Manitoba Hydro has now revised its application materials pertaining to its**  
5 **financial targets and its future rate path. In keeping with its apparently primary objective of achieving a Debt**  
6 **to Equity Ratio of 75-25 by March 31, 2027, it now asserts that an even more aggressive 10-year rate path will**  
7 **be required, as described in the chart below. It is notable that in making this adjustment to its forecast of the**  
8 **future, Manitoba Hydro does not reference its other two measures of financial health, but instead focuses**  
9 **almost exclusively on the need to meet its Debt : Equity target.**

	Original Application	Revised Materials
1 August 2017 to 31 March 2018	7.9%	3.36%
1 April 2018 to 31 March 2019	7.9%	7.9%
1 April 2019 to 31 March 2020	7.9%	7.9%
1 April 2020 to 31 March 2021	7.9%	7.9%
1 April 2021 to 31 March 2022	7.9%	7.9%
1 April 2022 to 31 March 2023	2.0%	7.9%
1 April 2023 to 31 March 2024	2.0%	7.9%
1 April 2024 to 31 March 2025	2.0%	4.54%
1 April 2025 to 31 March 2026	2.0%	2.0%
1 April 2026 to 31 March 2027	2.0%	2.0%

10

Formal request:  Interim Decision:  Revised Projection: 

11 It is important to note that despite the change in forward projections based on Manitoba Hydro's target  
12 Debt : Equity Ratio and timing goal, Manitoba Hydro has not requested that the PUB formally endorse or otherwise  
13 agree with either the target level or the timing goal. Nor is any certainty with respect to future rate increases actually  
14 being requested. In effect, the 10-year rate path is provided for illustrative purposes only, to support arguments  
15 justifying the formal rate request. Presumably, Manitoba Hydro will be returning to the PUB for new rates as of  
16 April 1, 2019, and such new application will be based on two additional years of operating history and a new set of  
17 assumptions (domestic demand, export prices, operating costs, etc., etc.). As a result, that future rate request and  
18 forward projections for rates could be entirely different, even if still based on a Debt : Equity Ratio target of 75:25,  
19 with a goal of March 31, 2027.

## 1 **2. Issues Addressed in this Report**

2 This report will attempt to shed light on a number of topics arising from Manitoba's Hydro's rate application, and in  
3 particular the reliance on financial targets and goals to support the particular level of the rate increase requested.

4 Manitoba Hydro's focus on financial targets, and in particular on the Debt : Equity Ratio, raises a number of  
5 questions.

- 6 • Why are financial targets relevant to rate-setting for Manitoba Hydro?
- 7 • Should the Debt : Equity Ratio be the primary financial target that is taken into account when setting rates  
8 for the future?
- 9 • Assuming the Debt : Equity Ratio is the primary target, should rates be set so as to achieve that target by  
10 March 31, 2027?

11 Section 3 of the report will examine the context for Manitoba Hydro's financial targets, in terms of the nature of the  
12 targets, the levels Manitoba has chosen to aim for, and the timeframe over which the targets will be achieved. The  
13 section will consider questions related to whether Manitoba Hydro's self-defined financial targets are appropriate  
14 targets to help guide ratemaking.

15 Section 3(a) will address the legislative framework under which Manitoba Hydro operates, and which supports the  
16 PUB's consideration of rate requests. Since the legislation requires Manitoba Hydro to apply to a utility regulator for  
17 rates, section 3(b) will summarize the general statements of the PUB with respect to the principles guiding its  
18 decisions. In addition to Manitoba legislation, the PUB is also guided by the body of regulatory principles and good  
19 practice that have been developed over the past hundred years across North America. As a result, this body of  
20 principles and practice will be outlined in section 3(c).

21 Manitoba Hydro is a public enterprise, in that it does not have private sector shareholders but is instead created by  
22 statute on behalf of the people of Manitoba. This places the company outside of the worldwide norm for utility  
23 companies, but is by no means a unique or exclusive condition. Section 3(d) will examine some of the ways in which  
24 Manitoba Hydro's circumstances differ from those of the traditional regulated utility model, particularly as they pertain  
25 to financial targets and performance.

26 There are many other utilities structured as public enterprises, even though a majority are not, and section 3(e) will  
27 provide information on a number of public enterprise electricity utilities from Canada and the United States for the  
28 purpose of comparison and contrast with Manitoba Hydro, particularly from the perspective of financial performance  
29 and targets.

30 Finally, in terms of context, the views and practices of the capital markets with respect to financial targets at public  
31 enterprise utilities like Manitoba Hydro will be addressed in section 3(f). This will provide some indication of the range  
32 of possible targets, levels and timing goals that the PUB may consider within its ratemaking deliberations while  
33 ensuring that Manitoba Hydro continues to have access to the capital markets.

34 In the application, Manitoba Hydro contends that robust financial targets are required in order to better manage risks  
35 that potentially threaten Manitoba ratepayers. As a result, section 4 attempts to assess the risks facing Manitoba

- 1 Hydro, understand how these risks might affect financial performance, and hence how the PUB may wish to address  
2 risk issues within its deliberation on Manitoba Hydro's application.
- 3 Section 4(a) outlines the risks faced by Manitoba Hydro in broad terms, and attempts to provide some boundaries on  
4 the frequency, severity and duration that should be expected for certain risk issues. Section 4(b) considers the  
5 mechanisms which could be used to financially manage these risks from a regulated utility perspective. In addition,  
6 the practical limitations on such mechanisms will be addressed so as to eliminate from consideration those that are  
7 not likely to be applicable in the future.
- 8 Section 4(c) focuses on the relationship between risks, financial targets, financial mechanisms to manage those  
9 risks, and the regulatory principles that should guide ratemaking decisions.
- 10 Section 5 addresses some of the practical issues that fall out of a determination about financial targets in a  
11 ratemaking context. In particular, section 5(a) considers the future ratemaking impact of a decision based on a  
12 particular set of financial targets and goals. Section 5(b) considers the regulator's ability, through its ratemaking  
13 decision, to affect the capital market's perception of Manitoba Hydro and its financial targets and behaviour. Finally,  
14 section 5(c) examines how a regulatory decision on financial targets and goals will affect the debt management  
15 strategy of Manitoba Hydro.
- 16 Section 6 summarizes the key observations on Manitoba Hydro's financial targets made in this report, and suggests  
17 possible paths forward for the PUB to pursue on these matters.

### 3. Context for Manitoba Hydro Financial Targets and Goals

The ultimate goal of regulatory rate-making is “just and reasonable rates”, as well as ensuring “fair” and “equitable” treatment of all of the parties involved. However, these goals can only be met by reference to some set of principles and models which guide deliberation and decisions, as they are applied to specific circumstances. Without context and principles, “just”, “reasonable”, “fair” and “equitable” are just empty words.

#### A. Manitoba Hydro’s Legislative Framework

[Please see Appendix A for the text of the legislation referred to in this section of this report]

Manitoba Hydro is a corporation created by statute of the Province of Manitoba, through the *Manitoba Hydro Act*. The *Act* specifies that the company is the sole provider of electricity to retail customers in Manitoba (s. 15.2), and has the power to require any electricity produced by anyone in the province to be supplied to Manitoba Hydro (s. 16(1)(c)). In effect, the Province of Manitoba is the exclusive territory of the utility from the perspective of electricity supply.

The corporation has two main purposes:

- To supply power “adequate for the needs of the province”, and
- “to supply power to persons outside the province” (s. 2).

The Board of Directors of the corporation has the power to make most decisions about the conduct of the business of the corporation, and has the responsibility to ensure it is meeting its purposes (ss. 14 and 15). However, like most government-owned enterprises, the company may not sell its businesses or major assets without express government approval (s. 15.1).

From a financial perspective, four provisions are critical:

- The price of power must reflect the full cost of operating the electricity system (s. 39(1));
- The corporation has limited powers to raise debt for short-term purposes (up to \$500 million);
- The corporation’s long term debt may be supplied by the government of Manitoba
- The province will guarantee all outstanding debt of Manitoba Hydro (ss. 30 to 35)

Despite the broad powers of the corporation to manage the supply and delivery of power in the Province of Manitoba, the company does not have the right to set its own rates. The *Crown Corporations Governance and Accountability Act* requires that Manitoba Hydro apply to the Public Utilities Board of Manitoba for any change in rates (s. 25). The PUB has the authority to review Manitoba Hydro applications, and to set rates that are consistent with the provisions of the *Manitoba Hydro Act*. The *Public Utilities Board Act* specifies all of the procedural rules that the PUB follows in reviewing applications, which are brought into play by s. 25(3) of the CCGAA. However, much of the *PUB Act* is not applicable to Manitoba Hydro (according to s. 2(5)).

The *Manitoba Hydro Act* specifies what Manitoba Hydro can include in its calculation of the price of power (s. 39(1)):

- a) *the necessary operating expenses of the corporation, including the cost of generating, purchasing, distributing, and supplying power and of operating, maintaining, repairing, and insuring the property and works of the corporation, and its costs of administration;*

- 1        b) *all interest and debt service charges payable by the corporation upon, or in respect of, money advanced to*  
 2        *or borrowed by, and all obligations assumed by, or the responsibility for the performance or implementation*  
 3        *of which is an obligation of the corporation and used in or for the construction, purchase, acquisition, or*  
 4        *operation, of the property and works of the corporation, including its working capital, less however the*  
 5        *amount of any interest that it may collect on moneys owing to it;*
- 6        c) *the sum that, in the opinion of the board, should be provided in each year for the reserves or funds to be*  
 7        *established and maintained pursuant to subsection 40(1).*

8        The concept of “reserves” is critical to the finances of the corporation, since it provides the enterprise with a degree of  
 9        flexibility in managing its finances, which might not otherwise be possible. Section 40(1) and s. 40(2) provide  
 10       additional detail with respect to reserves:

11       *40(1) The board shall establish and maintain, and may adjust as required, such reserves or funds of the*  
 12       *corporation as are sufficient, in the opinion of the board, to provide*

- 13       a) *for the amortization of the cost to the corporation of the property and works, (whether as a whole or in*  
 14       *its component parts), of the corporation during the period, or remaining period, of the useful life thereof;*  
 15       b) *insurance, for which provision is not otherwise made, against loss or damage to any property of the*  
 16       *corporation, or to the persons or property of others, caused by or arising out of the works or operations*  
 17       *of the corporation;*  
 18       c) *for the stabilization by the board of rates or prices for power sold by the corporation, the meeting of*  
 19       *extraordinary contingencies, and such other requirements or purposes as in the opinion of the board*  
 20       *are proper.*

21       *40(2) The reserves created pursuant to subsection (1) may be used or employed by the board*

- 22       a) *towards the reservation and setting aside of the sinking fund established under section 41;*  
 23       b) *towards the renewal, reconstruction, or replacement, or depreciated, damaged, or obsolescent property*  
 24       *and works;*  
 25       c) *towards restoration of any property lost or damaged, or the payment of any claims, in respect of which*  
 26       *a reserve as insurance has been established;*  
 27       d) *in such manner towards the stabilization of rates or prices for power, the meeting of extraordinary*  
 28       *contingencies, and for such other requirements or purposes, as the board in its discretion deems*  
 29       *proper; and*  
 30       e) *subject to the approval of the Lieutenant Governor in Council, towards the cost of construction of new*  
 31       *works and extensions, improvements, or additions, to any property and works of the corporation.*

32       Somewhat confusingly, however, the *Crown Corporations Governance and Accountability Act* provides a different  
 33       description of what should be included in the PUB’s consideration of proposed Manitoba Hydro rates:

34       *25(4) In reaching a decision pursuant to this Part, The Public Utilities Board may*

- 35       a) *take into consideration*
- 36            (i) *the amount required to provide sufficient funds to cover operating, maintenance and administration*  
 37            *expenses of the corporation,*

- 1           (ii) *interest and expenses on debt incurred for the purposes of the corporation by the government,*  
 2           (iii) *interest on debt incurred by the corporation,*  
 3           (iv) *reserves for replacement, renewal and obsolescence of works of the corporation,*  
 4           (v) *any other reserves that are necessary for the maintenance, operation, and replacement of works of*  
 5                 *the corporation,*  
 6           (vi) *liabilities of the corporation for pension benefits and other employee benefit programs,*  
 7           (vii) *any other payments that are required to be made out of the revenue of the corporation,*  
 8           (viii) *any compelling policy considerations that the board considers relevant to the matter, and*  
 9           (ix) *any other factors that the Board considers relevant to the matter; and*
- 10           b) *hear submissions from any persons or groups or classes of persons or groups who, in the opinion of*  
 11                 *the Board, have an interest in the matter.*

12 While the formulations of the requirements are somewhat different between the two Acts, it is clear that both Acts  
 13 provide flexibility to include some amount of “reserves” in the calculation of rates charged by Manitoba Hydro.  
 14 Moreover, both Acts make clear that recovery of all of Manitoba Hydro’s necessary costs is required over time.

15 One notable issue is that while both Acts specifically allow for “reserves” to be maintained at Manitoba Hydro, and for  
 16 the calculation of rates to take reserves into account, neither the legislation nor attendant regulations specify the size  
 17 of those reserves, nor any other characteristics about them. Unlike in many other jurisdictions, where the capital  
 18 structure of government-created utilities are specified by government, in Manitoba this matter has been left open.

19

## 20 **B. Regulatory Principles and the Regulatory Model**

21 While legislation spells out the broad outlines of what can and should be included in rates, the details and nuances of  
 22 rate-setting are found in regulatory principles, policies and decisions. Over more than 100 years, a body of regulatory  
 23 precedents and practice has developed which can be called upon to help make determinations about utility rate  
 24 issues. This regulatory practice extends beyond Manitoba to the rest of Canada, the United States, the United  
 25 Kingdom, and other countries with similar legal and government systems with respect to utilities.

26 In addition, there is also a substantial body of academic analysis from the perspective of economics and law which  
 27 sheds light on regulated utility rates, and regulatory issues more broadly.

28

### 29 *Manitoba PUB Regulatory Principles*

30 The PUB has described its regulatory principles in the following way<sup>3</sup>:

31           *There is no single authority that sets regulatory principles, and these principles may conflict or overlap, but it*  
 32           *is the goal of the PUB to effectively balance the following principles and consistently take them into*  
 33           *consideration when setting utility rates.*

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<sup>3</sup> Please see Appendix B for the full text of the PUB’s statement about regulatory principles, as drawn from the PUB’s website.



- 1 - *Cost of service standard*
- 2 - *Intergenerational equity*
- 3 - *Matching Principle*
- 4 - *Rate stability and predictability*
- 5 - *Used or required to be used*
- 6 - *Prudence standard*
- 7 - *Why we do it*

8 Specifically with respect to its consideration of rate applications, in Board Order 98/14 the PUB summarized its duty  
9 as:<sup>4</sup>

- 10 - *Ensuring that forecasts are reasonably reliable;*
- 11 - *Ensuring that actual and projected costs incurred are necessary and prudent;*
- 12 - *Assessing the reasonable revenue needs of an applicant in the context of its overall general health;*
- 13 - *Determining an appropriate allocation of costs between classes; and*
- 14 - *Setting just and reasonable rates in accordance with statutory objective*

15 This summary reflects many of the concepts included in the PUB's principles, as described above.

16

#### 17 *Broader Regulatory Principles and Practice*

18 As noted above, the PUB does not exist as a regulator in isolation, nor did it develop its principles and practices on  
19 its own. The PUB's principles and practices are drawn from, and broadly consistent with those of many other  
20 jurisdictions, with appropriate adjustments for the needs of Manitoba.

21 An enormous body of academic literature concerning utility regulation exists, which summarizes, analyses and  
22 critiques a multitude of the issues which may arise in any jurisdiction. One of the foundational texts for modern  
23 regulatory rate-making is James C. Bonbright's *Principles of Public Utility Rates* (1961), source of the famous  
24 "Bonbright Criteria" for regulatory rate-making.<sup>5</sup> Important additional texts include, for example, Alfred E. Khan, *The*  
25 *Economics of Regulation* (1970), and Charles F. Phillips, *The Regulation of Public Utilities* (1984). From these and  
26 many similar works, a summary list of general principles can be formed which capture what most regulators focus on.

27 *Monopoly Utility Customer Service:* Regulated rates should be set for services which can only be efficiently  
28 provided by a monopoly. If a service is amenable to market competition, then it should not be regulated, but  
29 rather should be opened to competition, to the benefit of customers. Assuming a territorial monopoly is the only  
30 reasonable arrangement for a service, then ensuring the actual delivery of high quality service to customers  
31 should be a priority of regulation.

32 *Economic Efficiency, both Static and Dynamic:* A monopoly utility should be regulated in such a way that its  
33 services are delivered as efficiently as possible, making best possible use of available resources, both at any  
34 given time and over time. Given that the potential for efficiency changes over time depending on labour markets,

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<sup>4</sup> Board Order 98/14, page 28. Note that this was a Board Order in respect of the Manitoba Public Insurance Corporation. However, a substantially similar list appears in Board Order 5/12, pages 26 – 27, which was in respect of Manitoba Hydro.

<sup>5</sup> Please see Appendix C for the full text of the Bonbright Criteria.

1 available technology and economic conditions, regulators should ensure that utilities are not only delivering  
2 services using the most efficient tools and practices available at any given time, but are also appropriately  
3 planning and investing to perform their functions more efficiently in the future.

4 *Cost Causality, both Between Customers and Over Time:* Customers should pay the costs associated with the  
5 services they use, and rates should reflect that. This is a critical concept in allocating current costs between  
6 customer classes, but also with respect to allocating the cost of long-lived assets over time. This principle rests  
7 on the recognition that all customers are equally important, so fairness demands that no customers be forced to  
8 pay for costs caused by others.

9 *Stability and Predictability:* Customers' ability to properly plan their usage of the utility's products and services  
10 depends on knowledge about how much those services will cost or are likely to cost, and when and in what form  
11 they will be available. By the same token, the utility itself can only operate efficiently if it has appropriate  
12 foreknowledge of the standards and business practices that are going to be required of it.

13 *Prudence:* Utilities should operate in a manner which reasonably reflects the common understanding of risks  
14 applicable in their industry, and seek to appropriately manage those risks. This principle is both a standard for  
15 utility behaviour, and a defense for utilities against after-the-fact criticism of their decisions and behaviour in  
16 challenging circumstances.

17 *Public Interest:* Utilities should be required to operate in a manner that is cognizant of the externalities  
18 associated with their products and services, and as much as possible supports the economic and social  
19 development of their communities. As a matter of course, utilities should meet all public requirements and  
20 standards with respect to labour, environmental, health and safety practices.

21 *Access to the Capital Markets:* Utilities are capital intensive businesses, and as such should be regulated,  
22 organized and operated in a way which will be attractive to the capital markets as an investment opportunity.  
23 This will both facilitate ongoing investment, and ensure that the cost of capital applicable to the investment is as  
24 low as possible.

25 It is important to note that these principles cannot always be simultaneously accommodated in every regulatory  
26 situation. The essence of "fairness" or a "just and reasonable" determination is in fact typically associated with  
27 balancing and applying these principles to specific cases. For example, "cost causality" might imply that costs should  
28 be allocated on an individual customer basis, but concern with administrative efficiency demands customers be  
29 grouped into reasonably large classes to prevent undue administrative burden and keep costs down. Similarly, fixing  
30 prices for 10 years at a time might benefit customers by providing predictability, but the capital markets would object  
31 that limiting financial flexibility would create significant risks that would result in much higher costs of capital. Despite  
32 the impossibility of simultaneously satisfying all of the principles in every situation, it is still critical that the relationship  
33 between every regulatory decision and the principles upon which it rests are made clear.

#### 34 35 *The Typical Economic Model for Regulated Utilities*

36 The broad regulatory principles outlined above were formulated in relation to an economic model for utilities. This  
37 model both expresses the application of these principles, and highlights their limitations.

1 *Investor-owned*: In the United States, where there has been the most development of both the economic  
2 literature and jurisprudence of regulated utilities, approximately 70% of electricity customers today are served by  
3 investor-owned utilities. While the remainder are served by a combination of rural electric cooperatives and  
4 government-owned utilities (“Public Power Utilities”, as they are called in the United States), the starting point for  
5 utility analysis has traditionally been the investor-owned model. In an investor-owned utility, equity investors bear  
6 the primary risk of financial uncertainty and loss, in exchange for receiving a regulated return on the equity they  
7 contributed to the utility.

8 *Ratebase Model*: The capital base of the utility consists of the Property, Plant and Equipment (including  
9 “intangibles” that are necessary for the operation of the utility) that is currently in use (“used and useful”), plus  
10 some amount of Working Capital (the exact definition and calculation of which differs from jurisdiction to  
11 jurisdiction) necessary for the daily operation of the business.

12 *Capital Structure Determined by the Regulator*: Typically, regulators determine a maximum allowable amount of  
13 debt in the capital structure, with the remainder consisting of equity contributed by shareholders. The choice of  
14 the debt-equity ratio must balance efficiency, risk management and access to capital. A very significant literature  
15 exists specifically on the point of the restrictions regulators should put on equity providers to manipulate the  
16 capital structure for their own benefit.

17 *Revenue Requirement Formula*:  $\text{Opex} + \text{Depreciation} + \text{Debt Interest} + \text{Return on Equity} + \text{Taxes}$   
18 where:

- 19 ➤ Operating Expenses (Opex) are consistent with prudent and efficient utility operations, and will be  
20 expected to be sufficient to deliver on customer requirements, while meeting all public interest  
21 standards;
- 22 ➤ Depreciation is based on the total pool of depreciable assets employed in the business (as long as they  
23 are “used and useful”), and is typically calculated on a straight line basis (whether individual or group),  
24 in order to allocate the burden of the use of assets equally across time to the ratepayers that benefit  
25 from them;
- 26 ➤ Debt Interest and Return on Equity are calculated based on the deemed Ratebase of the utility;
- 27 ➤ Debt Interest is typically calculated using interest rates actually faced by the utility, to ensure that the  
28 cost of capital is both as efficient as possible, and reflective of the real cost of operating the utility;
- 29 ➤ Return on Equity is based on a Rate of Return on Equity set by the regulator, at a level that is high  
30 enough to attract sufficient capital from the market, but not higher than necessary, so as to ensure that  
31 cost of capital for the utility is as efficient as possible;
- 32 ➤ Taxes at prevailing rates, and calculated based on the expected Return on Equity.

33 *Prospective Rates*: The Revenue Requirement is calculated prospectively for a coming year, based on forecasts  
34 and assumptions. The Equity Provider is at risk for any variation between the forecasts and assumptions and  
35 reality as it may occur, within limits set by the regulator. If the utility is operated poorly, and earns less than the  
36 expected return on equity during the coming period, then investors will suffer. If weather events (such as heat  
37 waves or cold snaps) cause customers to use more than usual amounts of power, then investors may earn  
38 higher than normal returns. However, regulators sometimes provide full or partial relief against certain unusual  
39 risks, and/or may limit the allowed return on equity above a certain level (which reduces the financial risk  
40 associated with the equity while possibly also limiting the upside available to investors, and may make the total  
41 cost of the utility more efficient in the long run).

1        *Capital Plans Approved by the Regulator:* Since investors' return on equity is ultimately dependant on the capital  
2        used in the business, a primary concern of regulators is ensuring that capital equipment is only purchased if it is  
3        reasonably and prudently necessary for the proper operation of the utility (regulated utilities are one of the few  
4        classes of companies in the world where spending more money on capital equipment is a positive temptation).

5        This model, as refined over decades of experience, has been optimized to balance the various regulatory principles  
6        described above. Under theoretically ideal conditions (for example, stable inflation and interest rates, zero customer  
7        growth and equal amounts of capital expenditures required annually), customers would face a stable cost of power  
8        on an inflation-adjusted basis, which would represent a perfectly "fair" allocation of costs over time. However, since  
9        "ideal" conditions do not happen in reality, any number of challenging decisions are required to try and ensure "just  
10       and reasonable" rates. The widespread use of this model across North America means that most of these issues  
11       have been addressed many times in the past, and different solutions have been attempted, which provides all  
12       regulators with a rich body of experience upon which to draw.

### 14       **C. Manitoba Hydro Differs from the Traditional Regulated Utility Model**

15       Manitoba Hydro is not structured according to the typical regulated utility model, and differs in a number of important  
16       ways.

17       *Non-share Capital Corporation:* As noted above, Manitoba Hydro was created by statute, is an agent of the  
18       Government of Manitoba, has no equity investors at risk for its performance, and makes no payments to any  
19       equity investors (the government is not an equity investor itself). Theoretically, this means that 100% of the  
20       utility's capital could be debt. In addition, since there are no equity investors, and no equity capital at risk in the  
21       company, then any capital in the company other than debt is not really "equity" in the normal meaning of the  
22       word.<sup>6</sup>

23       *Exports are an Objective:* Unlike a typical monopoly utility whose obligation is to serve the customers in its  
24       territory as efficiently as possible, Manitoba Hydro is explicitly allowed by its governing legislation to seek to  
25       export power. This is a critical distinction, because the business model and risks associated with exports are  
26       fundamentally different from the business model and risks associated with a domestic monopoly utility business.

27       *Debt Provided and Guaranteed by Government:* The Government of Manitoba is the sole provider of long-term  
28       debt to Manitoba Hydro. In turn, the government raises debt capital from the capital markets, and on-lends the  
29       funds to Manitoba Hydro, with the addition of a debt guarantee fee. This means that Manitoba Hydro is not  
30       directly exposed to the capital markets. However, the regulatory principle of "Access to Capital" is still important,  
31       since Manitoba Hydro's performance could have important impacts on the government's access to capital. The  
32       relationship to capital markets is less direct than normal, but still relevant.

33       *No Ratebase Model:* Manitoba Hydro does not have a ratebase consisting of property and working capital, no  
34       deemed capital structure for ratemaking purposes, and no rate of return on equity. Instead, only actual costs of

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<sup>6</sup> Note that some government-owned enterprises use various names for "non-debt" capital, while others share Manitoba Hydro's use of the term "equity". Please see the next section for a sampling of the terminology used.

1 debt incurred by the company are included in rates, effectively minimizing the cash cost of capital for the  
2 corporation.<sup>7</sup>

3 *All Costs Are Recovered Over Time:* Since no equity investors are at risk, there are no parties available to bear  
4 the risk of Manitoba Hydro's actual financial performance. Domestic ratepayers are ultimately responsible for all  
5 of the costs of the utility, however and whenever incurred. While rates are still set prospectively based on  
6 forecasts and assumptions, any divergence between those forecasts and reality as it ultimately occurs are  
7 simply captured in future rates.

8 *Reserves are Required:* Since Manitoba Hydro has no equity investors or equity capital at risk, and the  
9 corporation applies for rates based on estimates and forecasts of its expenses and cost of debt (rather than the  
10 larger deemed cost of debt and equity that would be calculated in a typical investor-owned utility model, which is  
11 based on a ratebase that includes some amount of working capital in addition to used and useful assets), the  
12 corporation must maintain reserves which allow it to manage divergences between forecasted and actual  
13 revenues and costs. This is an issue which will be examined in greater depth below.

14 *Revenue Requirement Formula:* Given the many differences from the typical regulated utility model, a different  
15 revenue requirement formula could be understood to apply to Manitoba Hydro, namely:  
16  $\text{Opex} + \text{Depreciation} + \text{Debt Interest} + \text{Taxes} \pm \text{Planned Changes in Reserves}$   
17 where:

- 18 ➤ Opex, Depreciation, Debt Interest and Taxes have the same meaning as the typical regulatory model;
- 19 ➤ Return on equity is conspicuously absent from the formula; and
- 20 ➤ Planned changes in reserves can be positive or negative in any given year, depending on whether the  
21 corporation's reserves are more or less than required.

22 *Government Approves Major Capital Spending:* In the past, the Government of Manitoba has made decisions  
23 about major capital spending plans at Manitoba Hydro, and those plans were not contestable before the PUB.  
24 While "normal" capital spending could be reviewed as part of rate applications, very significant decisions related  
25 to the capital plan have been exempted from review. In the current rate application, the PUB has been directed  
26 by the government to review all capital spending plans as part of its determination of rates.<sup>8</sup>

27 Taken together, these various differences mean that Manitoba Hydro operates dramatically differently than a typical  
28 regulated utility, particularly in a financial sense.

29 The corporation's cash cost of capital is significantly lower than that of a typical utility, because Manitoba Hydro has  
30 access to government guaranteed debt, because it pays no returns on equity, and it charges customers only for its  
31 expected cash cost of debt interest rather than a deemed amount of debt interest based on a deemed ratebase.  
32 However, it is important to note that the actual cost of capital must include some accounting for the necessity and  
33 existence of reserves. The reserves represent a financial burden on the ratepayers that contributed the funds through  
34 their rates, and hence the capital cost of the reserves should be calculated at a discount rate appropriate for the full

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<sup>7</sup> Note that there is an exception to "actual" costs of debt, which is the "deemed debt" that is capitalized in assets under construction, and which is calculated based on the average cost of debt in the utility, rather than an actual cost of "construction debt".

<sup>8</sup> Manitoba Order-in-Council 92/2017, issued on April 5, 2017.

1 body of Manitoba Hydro domestic customers.<sup>9</sup> Unlike equity providers in a typical regulated utility who freely choose  
2 to contribute capital based on expected returns, Manitoba Hydro customers involuntarily make contributions to  
3 reserves through their rates. The effectively hidden nature of this capital cost should increase the burden on  
4 Manitoba Hydro to demonstrate that its reserves are both required and properly managed.

5 This is complicated by the fact that the corporation's mission to pursue export opportunities creates strikingly different  
6 incentives, pressures and risks as compared to a typical regulated utility. There is no doubt that the existence within  
7 Manitoba of natural hydroelectric resources represents a significant opportunity for social and economic development  
8 on a provincial scale. However, developing those resources for export purposes rather than domestic consumption  
9 casts Manitoba Hydro in an entrepreneurial role, rather than the usual role of a regulated monopoly utility.  
10 Entrepreneurs fundamentally make a "risk/reward" decision when they choose to invest in a project: if their hopes  
11 bear out, they will make money, but if the project results are poor, they ultimately could lose their entire investment.

12 At Manitoba Hydro, investment decisions on export projects are made by the government based on analysis provided  
13 by Manitoba Hydro, yet the financial consequences of the decision are largely borne by domestic ratepayers, for  
14 good or ill. This disconnect in financial incentives is highly problematic, and not really amenable to analysis through  
15 the regulatory principles that arise from the typical regulated utility model. Regardless, the existence of these  
16 pressures in Manitoba Hydro means that the need for reserves are strongly impacted by the existence of export  
17 projects at any given time. Therefore, any consideration of the size and nature of reserves must take into account the  
18 risks inherent in export activities.

19

#### 20 **D. The Manitoba Hydro Peer Group**

21 Manitoba Hydro is not a typical regulated utility, for all of the reasons described above. The primary difference is that  
22 it is an entity created by government statute, without equity investors. However, while this is not the way a majority of  
23 electricity utilities are structured, it is not a unique characteristic, as there are a number of government-created  
24 electricity utilities across North America, some of which share various characteristics with Manitoba Hydro.

25 Information on a number of such utilities has been gathered below.<sup>10</sup> A primary distinction between the two groups  
26 listed below is national identity: the first group consists of Canadian utilities, and the second consists of utilities from  
27 the United States.

28 A few observations may be considered notable:

29 *Export Focus is Rare:* Manitoba Hydro shares a mandate to pursue exports only with Hydro Quebec and Nalcor.  
30 BC Hydro conducts and profits from active trading with nearby jurisdictions, but that function depends more on  
31 the flexibility of that province's electricity system, rather than net exports (in many years the BC Hydro is a net  
32 importer of power, yet still profits handsomely from its trading activity). All other government-created utilities are

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<sup>9</sup> Note that reserves always are attributable to domestic ratepayers, even if Manitoba Hydro's exports happen to be profitable at any given time. The profits from exports in a cost-recovery entity like Manitoba Hydro should be used to reduce rates on domestic customers. If rates are not reduced because the export profits are necessary to increase reserves, then customers are making the contribution. Customers are in the same position as equity providers in a typical regulated utility, and bear the financial risk of the corporation.

<sup>10</sup> Please see Appendix D for additional information on these utilities.

1 mandated to seek to deliver low cost power to customers in their territories, and may engage in exports as an  
2 incidental by-product of having temporary excesses of supply.

3 *Pure Cost Recovery Model More Common in the United States:* Manitoba Hydro does not pay dividends to the  
4 Province of Manitoba.<sup>11</sup> This contrasts with most government-created utilities in Canada, which are required to  
5 pay dividends to provincial or municipal governments when financially feasible.<sup>12</sup> In several provinces, including  
6 in British Columbia, for example, the deemed debt to equity ratio is specified in legislation, and the regulator is  
7 required to include in rates a specific return on that equity. Comparison of financial targets between Manitoba  
8 and these provinces is therefore of limited use. In the United States, by contrast, a number of power authorities  
9 are explicitly structured as pure cost recovery enterprises, and pay no dividends to any government or other  
10 entity.

11 *Use of the Term “Equity”:* Manitoba Hydro shares the use of the term “equity” with all other Canadian utilities.  
12 Given that virtually all Canadian utilities either do or have regularly paid dividends to their equity owner, this  
13 usage in cases other than Manitoba appears logical. However, in the United States where pure cost recovery  
14 models are more prevalent, a variety of different terms are used by utilities instead of the word “equity”, which  
15 often provide a better description of the source of the capital in question. For example, the Bonneville Power  
16 Administration refers to “Accumulated Net Revenues”, the New York Power Authority, Long Island Power  
17 Authority and Santee Cooper all refer to “Net Investment in Capital Assets”, and the Tennessee Valley Authority  
18 uses the term “Proprietary Capital”.

19 *Debt to PPE Varies Dramatically:* In the tables presented, recent information on long-term debt and on Property,  
20 Plant and Equipment is provided.<sup>13</sup> These two balance sheet line items were chosen deliberately because they  
21 tend to have stable definitions, even across various accounting standards and regulatory approaches.  
22 Calculating a ratio between these two figures provides insight into the degree of indebtedness of the entity.<sup>14</sup> In  
23 Canada, the range is from 27% for OPG to 102% for NB Power. In the United States, the range is from 22% for  
24 the New York Power Authority to 102% for the Long Island Power Authority. These dramatic differences depend  
25 both on policy choices, as well as coincidental characteristics of each utility.<sup>15</sup> Note that for comparison  
26 purposes, Manitoba Hydro’s Debt : PPE ratio as of March 31, 2017 would be approximately 82%.

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<sup>11</sup> Note that special dividends have been paid in the past.

<sup>12</sup> Note that Nalcor, NB Power and SaskPower have not paid dividends in several years due to various financial challenges. Hydro Quebec and BC Hydro are required to make regular payments, while OPG’s payments depend on performance. The municipal utilities all pay regular distributions to their owners.

<sup>13</sup> Note that for entities using IFRS accounting, “intangibles” were added to PPE. Also, the current portion of long-term debt has been added to reported long-term debt.

<sup>14</sup> Note that Debt/PPE is not a typical financial metric used by credit rating agencies or other analysts. Instead, an analyst will typically undertake a substantial process of “adjusting” reported financial results to standardize them and compare them to peers. For example, standard metrics for capitalization include Debt : Total Capital, and Debt : Equity. However, the use of GAAP vs. IFRS accounting affects the calculation of Total Capital, and some utilities use each of these accounting methods. Moreover, again depending on accounting standards and regulatory policy, non-cash items such as pension liabilities, post-retirement benefits liabilities and regulatory assets and liabilities may affect total capital in different ways. Focusing on the assets actually used in the utility business and verifiable long-term debt simplifies comparison and reduces the need for extensive explanations and caveats.

<sup>15</sup> For example, OPG has a massive non-debt liability on its balance sheet for nuclear retirement, which strongly affects its capital structure, and Santee Cooper has recently been forced to accept that it will have to write off several billion dollars of investment in a failed nuclear build, which has greatly increased its indebtedness.

**Selected Government-Created Electricity Utilities in Canada**

Name	Nalcor	NB Power	Hydro Quebec	Ontario Power Generation	Toronto Hydro	SaskPower	EPCOR	Enmax	BC Hydro
<b>Created By</b>	Government of Newfoundland and Labrador	Government of New Brunswick	Government of Quebec	Government of Ontario	City of Toronto	Government of Saskatchewan	City of Edmonton	City of Calgary	Government of British Columbia
<b>Organization Type</b>	Wholly owned Crown Corporation	Wholly owned Crown Corporation	Wholly owned Crown Corporation	Corporation with equity contributed by government	Wholly owned municipal company	Wholly owned Crown Corporation	Municipally owned commercial entity	Municipally owned utility	Wholly owned Crown Corporation
<b>Regulated Market</b>	Newfoundland and Labrador Generation and Transmission	New Brunswick Generation, Transmission and Distribution	Quebec and U.S. Northeastern regions (e.g. New England) Electricity Generation, Transmission and Distribution	Ontario Electricity Generation	Ontario Electricity Distribution	Saskatchewan Electricity Generation, Transmission and Distribution	Electricity Transmission and Distribution - British Columbia, Alberta, Saskatchewan	Calgary Electricity Generation, Transmission and Distribution and Natural Gas Distribution	British Columbia Electricity Generation, Transmission and Distribution
<b>Other Markets</b>	Electricity exports to Ontario, Quebec, Maritimes, US Northeast; also oil production and marketing	Maritimes, US Northeast	Ontario, Maritimes, US Northeast			Energy trading with Alberta, Manitoba, US Plains	Water and Wastewater in Alberta, BC, Saskatchewan, Arizona and New Mexico; Engineering services		Alberta, US Northwest
<b>Export Mandate</b>	Yes	No - surplus only	Yes	No	N/A	No - surplus only	N/A	N/A	Active Trading
<b>Dividends Paid To</b>	Government of Newfoundland and Labrador	Government of New Brunswick	Government of Quebec	Government of Ontario	City of Toronto	Government of Saskatchewan	City of Edmonton	City of Calgary	Government of British Columbia
<b>Regulated By</b>	Newfoundland and Labrador Board of Commissioners of Public Utilities	New Brunswick Energy and Utilities Board	Régie de l'énergie du Québec	Ontario Energy Board	Ontario Energy Board	Saskatchewan Rate Review Panel	Alberta Utility Commission	Alberta Utilities Commission	British Columbia Utilities Commission
<b>2016 PPE (millions)</b>	11,492	4,317	63,629	20,097	4,125	9,566	5,276	4,861	23,599
<b>2016 Long-term Debt (millions)</b>	6,015	4,427	45,616	5,520	2,085	5,559	1,920	1,647	20,024
<b>Debt/PPE</b>	52.3%	102.5%	71.7%	27.5%	50.5%	58.1%	36.4%	33.9%	84.9%
<b>Company Credit Ratings</b>					DBRS A S&P A		DBRS A low S&P A-	DBRS A low S&P BBB+	
<b>Parent Credit Ratings (if applicable)</b>	DBRS A low S&P A Moody's Aa3	DBRS A high S&P A+ Moody's Aa2	DBRS A high S&P AA- Moody's Aa2 Fitch AA-	DBRS AA low S&P A+ Moody's Aa2 Fitch AA-		DBRS AA S&P AA Moody's Aaa			DBRS AA high S&P AAA Moody's Aaa Fitch AAA



**Selected Government-Created Electricity Utilities in the United States**

Name	Bonneville Power Administration	Tennessee Valley Authority	New York Power Authority	Long Island Power Authority	Santee Cooper	Los Angeles Department of Water and Power	Basin Electric Power Cooperative
Created By	US Government	US Government	US Government	State of New York	State of South Carolina	City of Los Angeles	Member cooperatives
Organization Type	Self-funding Federal Power Marketing Administration	Self-funding Federally owned corporation	Self-funding State Authority	Co-funded municipal sub-division of the State of New York	State-owned electricity and water utility	Revenue-producing proprietary department	Not-for-profit electric cooperative under North Dakota law
Regulated Market	Northwestern USA Electricity Generation and Transmission	Midwestern USA Electricity Generation and Transmission	New York State Electricity Generation and Transmission	Long Island and Queens, NY Electricity Transmission and Distribution	State of South Carolina Electricity Generation, Transmission, Distribution	Los Angeles and surrounding communities Electricity Generation, Transmission and Distribution, and Water system management	Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota and Wyoming Electricity Generation and Transmission
Other Markets	Western Interconnection	Flood control, navigation and land management			Water systems		
Export Mandate	No - surplus only	No - surplus only	No	No	No	No	No
Dividends Paid To	None	None	New York State ("contributions to")	None	South Carolina	City of Los Angeles	None
Regulated By	FERC	Self-regulating for generation, FERC for transmission	Self-regulating for generation, FERC for transmission	Self-regulating with oversight by New York Department of Public Service	Self-regulating	Self-regulating	Self-regulating for generation, FERC for transmission
2016 PPE (US millions)	16,783	34,043	3,825	7,769	8,214	17,335	4,428
2016 Debt (US millions)	15,641	22,183	868	7,947	8,269	14,403	4,183
Debt/PPE	93.20%	65.16%	22.69%	102.29%	100.67%	83.09%	94.47%
Company Credit Ratings	Fitch AA Moody's Aa1 S&P AA-	Fitch AAA Moody's Aaa S&P AA+	Fitch AA Moody's Aa1 S&P AA	Fitch A- Moody's A3 S&P A-	Fitch A+ Moody's A1 S&P A+	Fitch AA- Moody's Aa2 S&P AA-	Fitch A Moody's A3 S&P A
Parent Credit Ratings (if applicable)							

1 *Most But Not All Are Exclusive Monopolies in Their Territory:* No other electricity company is allowed to operate  
2 in Manitoba. This is also true in most of the peer group jurisdictions, and it is a financial strength for all of the  
3 companies that share that characteristic. Some, like Ontario Power Generation, are not exclusive suppliers in  
4 their territory, and are subject to various forms of competition, making them less useful as a comparator for  
5 Manitoba Hydro.

6 *Economic Model:* BC Hydro, Nalcor, OPG and the three Canadian municipal utilities examined above explicitly  
7 use the traditional “ratebase” utility model to produce rate applications, again making comparison with Manitoba  
8 difficult and of limited use. Many of the US utilities examined set their own rates for all or part of their services.  
9 The Tennessee Valley Authority, which sets its own rates for power, describes its model as a “Debt-Service  
10 Coverage Methodology”, which specifically focuses on the need to “cover its operating costs and to satisfy its  
11 obligations to pay principal and interest on debt”.<sup>16</sup> The Bonneville Power Administration uses a cost recovery  
12 model to calculate its revenue requirement, but explicitly focuses on measurements of reserves, risk and liquidity  
13 in its calculations to ensure that it continues to be attractive to debt providers.<sup>17</sup> SaskPower, Santee Cooper, the  
14 Los Angeles Department of Water and Power and others target specific annual payments to their government  
15 parent entities, so their rates include their projected full costs, plus a payment to equity, which allows a financial  
16 “cushion” in rates in the event that forecasts prove to be inaccurate.

17 *Investment Grade Debt:* All of the utilities examined which have their own credit ratings (i.e., Canadian municipal  
18 utilities and all of the US utilities) boast investment grade debt (at least BBB+), regardless of their current levels  
19 of indebtedness (which in some cases are higher than Manitoba Hydro’s). Every Canadian provincial utility is  
20 supported by provincial debt guarantees, or receives their debt funding directly through their provincial  
21 government, and all provincial governments in Canada are above investment grade.

22 This survey of government-created electricity utilities across North America serves to highlight that Manitoba Hydro is  
23 unique in important ways. It is the only utility which combines a full cost recovery model with an explicit mission to  
24 develop electricity resources for export purposes. Nalcor and Hydro Quebec both pursue exports, but neither  
25 operates based on a pure cost recovery model. Hydro Quebec shields its domestic ratepayers from the  
26 entrepreneurial risk associated with exports by designating a “heritage pool” of 165 TWh of energy for domestic use  
27 at fixed costs (rising annually by inflation). On the other hand, the results of export activities directly impact the  
28 government through the rise and fall of net income and dividends paid to the province. In essence, the government is  
29 taking the entrepreneurial risk associated with exports, not the ratepayer. Nalcor is pursuing a major export project  
30 (the Muskrat Falls generating station, and associated transmission infrastructure), but the government is directly  
31 contributing equity to that endeavour, and domestic rates continue to be based on a typical ratebase utility model.  
32 Similarly to Quebec, the Government of Newfoundland is at risk for its investment in export activities, while it earns a  
33 typical utility return on the portion of the investment serving domestic needs. In both of these cases, the risks facing  
34 domestic ratepayers are very different than in Manitoba, and the companies in question do not appear to be useful  
35 points of comparison with respect to financial targets for Manitoba Hydro.

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<sup>16</sup> Please see Tennessee Valley Authority, Form 10 K for 2016, page 12.

<sup>17</sup> Please see Bonneville Power Administration Overview for Investors, August 28, 2017, page 15, available at <https://www.bpa.gov/news/Investor/Pages/default.aspx>. In particular, please note the “Reserves Available for Risk” methodology and calculation, as well as “Days of Liquidity on Hand”, which includes access to a short-term credit line.

1 Several major utilities in the United States operate on a pure cost recovery basis, but do not pursue exports out of  
2 their system, except as a means to manage temporarily surplus power. Again, a direct comparison with respect to  
3 Debt : Equity Ratio or other metrics may not be particularly useful. Having said that, their focus with respect to  
4 financial targets generally is not a specific capital structure, but rather on measures of cash flow sufficiency and  
5 interest coverage. As noted above, the Tennessee Valley Authority goes so far as to label their economic model a  
6 “debt service coverage” scheme. Bonneville Power Administration focuses on cash flow sufficiency, and the  
7 maintenance of liquidity sufficient to manage potential needs between rate reviews (which are every two years, in  
8 their case). Both utilities make clear that their ultimate recourse to ensure economic viability is to rate increases (in  
9 the case of TVA, they set their own rates, while for BPA they apply to FERC).

10

### 11 **E. Capital Markets Environment**

12 Manitoba Hydro has limited direct exposure to the Canadian capital markets, given that it receives almost all of its  
13 long-term debt resources through the Government of Manitoba. Nevertheless, the capital markets are the ultimate  
14 funders of Manitoba Hydro’s debt, so understanding market perspectives on Manitoba Hydro’s economic  
15 performance is extremely important.

16

#### 17 *Market for Manitoba Debt, and Manitoba Hydro’s Role*

18 Manitoba Hydro does not issue long-term bonds to raise money.<sup>18</sup> Instead, the Province of Manitoba issues Manitoba  
19 bonds, and then on-lends the proceeds to Manitoba Hydro at identical terms (maturity date, interest rate, etc.). In  
20 addition, the Province adds a debt guarantee fee on all outstanding bonds, currently set at 1%.

21 From an investor’s point of view, they are never buying Manitoba Hydro debt, but rather are buying Province of  
22 Manitoba debt, which may be used to fund Manitoba Hydro projects, the projects of other Manitoba crown  
23 corporations, or the general obligations of the provincial government. Nevertheless, given the size of the Manitoba  
24 Hydro debt portfolio relative to the rest of the Government of Manitoba debt portfolio, information about Manitoba  
25 Hydro is critical to any potential bond buyer’s view of Manitoba bonds.

26 Issuance of provincial bonds or debt notes is typically an auction process. In grossly simplified terms:

- 27 - The issuer determines how much debt they are seeking, of what type (fixed rate, floating rate, etc.), and for  
28 what term;
- 29 - Potential investors are contacted by the banks acting as intermediaries for the bond sale and apprised of the  
30 details;
- 31 - On the day and time of the transaction, potential bond purchasers submit bids for the amount of bonds they  
32 are interested in purchasing, and at what price (sometimes investors are limited to a maximum bid, in order  
33 to ensure that bond issues are not overly concentrated into the hands of a small number of investors);

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<sup>18</sup> In the past, Manitoba Hydro did issue “Hydrobonds”, but no longer does so. Outstanding bonds form a very small part of the existing pool of debt. In addition, Manitoba Hydro can issue short term debt in its own name. However, this source of capital is also dwarfed by outstanding long-term bonds.

- 1 - Bids are ranked from lowest to highest, and bids are accepted from the bottom up until the total desired  
2 amount of the bond issue is reached;  
3 - The price of the highest bid to be accepted becomes the price of the entire debt issuance.

4 In order for potential investors to determine what interest rate they are willing to bid into the auction process, they  
5 must have an opinion on the risks associated with the transaction. All available information about the bond issuer and  
6 broader economic conditions factor into that understanding. Three layers of analysis are required, which are common  
7 to all financial investments:

- 8 - What currently is the risk associated with bonds vs. other types of available financial assets such as stocks,  
9 futures, options, or real estate? (i.e., asset class selection)  
10 - What is the risk of the national jurisdiction of the issuer vs. other countries? (i.e., market selection)  
11 - What is the relative risk of this particular issuer as compared to other issuers of that type of security in that  
12 country? (asset selection)

13 In concrete terms, the answers to the first two questions largely determine the interest rate associated with  
14 Government of Canada bonds. The global capital market determines the overall price of bonds versus stocks or other  
15 types of securities at any given time. The global capital market also determines the spread in bond prices between  
16 national governments, depending on real time collective global opinions about the expected performance of each  
17 national economy and government. Finally, information specific to Manitoba determines the spread between  
18 Manitoba bonds and Canada bonds.

19 Given that Manitoba Hydro debt represents such a large fraction of total Manitoba debt, information about Manitoba  
20 Hydro and its ability to make good on the terms and conditions of its bonds forms a very significant part of the story  
21 for all Manitoba bond issuances.

22

### 23 *Who Buys the Bonds, and What Is the Role of Credit Rating Agencies?*

24 For a typical Canadian dollar bond offering by a Canadian province, the list of potential buyers may consist of 150 to  
25 200 institutions. Typically, these include pension funds, insurance companies, banks and other large financial  
26 institutions. Most are based in Canada, but some international institutions purchase Canadian dollar bonds as well. If  
27 a province chooses to issue bonds in a foreign currency, then the number and nature of likely players will very much  
28 depend on the currency chosen for the bond issue, and the terms of the offering.

29 Some institutions have large portfolios of government bond holdings. For example, according to its 2017 Annual  
30 Report, the Canadian Pension Plan Investment Board held over \$80 billion in government bonds, from across  
31 Canada and globally. With over 1000 employees in its Toronto head office alone, and an entire group dedicated to  
32 the analysis and management of its bond portfolio, the fund can be considered an extremely sophisticated investor.  
33 Other potential investors are within the same class, while “smaller” institutional investors will still have large teams  
34 and significant research and analytical capabilities as they manage portfolios of government bonds measured in the  
35 billions of dollars.

36 All of these institutions make real time decisions about their bond purchases, trades and the management of their  
37 portfolios. There are numerous bond issues that occur every month, and furthermore government bonds are often

1 traded after they are issued, as institutions constantly seek to adjust the size and duration of their bond portfolios,  
2 based on their own financial needs and priorities.

3 Conspicuously absent from this picture are credit rating agencies. These companies are independent analysts who  
4 review available information about debt issuers, and provide an opinion as to their credit-worthiness in exchange for  
5 fees. Agencies do not participate in the debt market themselves. There is no direct relationship between the opinions  
6 of credit rating agencies and the actions of bond purchasers or traders. Bond purchasers participating in the bond  
7 market make decisions in real time, and cannot wait for the opinions of external advisors.<sup>19</sup> Credit rating agency  
8 opinions are one more data point in an ongoing stream of information that is critical to debt market decision-making.

9 In fact, it is notable that the opinions of credit rating agencies are often inconsistent with each other, as each agency  
10 determines its views independently, according to its own criteria. Moreover, since credit rating agency reviews often  
11 follow from significant events and developments affecting a debt issuer (in the context of governments, that could be  
12 annual budgets, announcements of major new policies, or significant events in the local economy), it is often the case  
13 that the bond market reacts before credit rating agencies do. Changes in bond prices often will precede  
14 announcements of new opinions by credit rating agencies, rather than follow them.

15 Nevertheless, credit rating agency reports are useful:

- 16 - They consist of well written, high quality, thorough and sophisticated financial analysis that will mirror the  
17 kinds of analysis that institutional bond buyers will likely also pursue in-house;
- 18 - They are updated from time to time, to take into account recent conditions and expectations about the future  
19 for a particular issuer; and
- 20 - They are publicly available (usually for a price), unlike the views of actual bond market participants, who are  
21 naturally reticent to share their analyses and opinions lest their competitive position be affected.

22 As a result, reviewing the opinions of credit rating agencies should provide insight into the thinking process of the  
23 bond market as a whole, which is extremely useful when considering the broader context for Manitoba Hydro  
24 financial targets.

25

## 26 *Credit Rating Agencies, Manitoba, and Manitoba Hydro*

27 The key issue for a bond buyer is the risk that the debt issuer will not fulfill the terms of the bond: either by failing to  
28 make interest payments that are required periodically, or by failing to redeem the bond when it comes due. The  
29 greater this risk of default, the higher the interest rate that will be required to entice a bond buyer to purchase a  
30 particular bond. At some point, bond buyers will simply refuse to purchase the bonds at any price, if too much risk of  
31 default is perceived.

32 National governments have the ability to print money, and so, as long as they issued bonds in their own currency,  
33 they have an almost unlimited ability to avoid technical default. However, if a national government resorts to printing

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<sup>19</sup> Note that if an issuer is issuing bonds for the first time, or if they are commencing a new series of bonds, they may contract with one or more credit rating agencies to issue reports in advance of an issue, as a service to investors who may not be fully familiar with the issuer. Principally, this is a means to give potential bond investors a starting point for their own analysis; it is not a substitute for bond buyers doing their own work to analyze opportunities.

1 money to fulfill its outstanding obligations, thereby debasing its currency, it will quickly find that investors will no  
2 longer buy any new issues of that country's debt securities, inevitably leading to financial crisis.

3 Sub-sovereign governments, like provinces in Canada, do not have the ability to print money. Nevertheless,  
4 provinces in Canada do have substantial capacity to raise funds through various forms of taxation. Their ability to  
5 actually do so, in sufficient quantity to fulfil financial obligations and potentially in the face of domestic political  
6 objections and resistance, is a critical part of the determination of credit-worthiness.

7 Manitoba is a special case among provinces, in that such a significant part of its debt is associated with its electricity  
8 crown corporation.<sup>20</sup> As a result, cash flows from electricity sales represent a significant part of its ability to service its  
9 debt, rather than just taxes.

10 Three credit rating agencies – DBRS, Moody's and S&P – provide opinions on the credit worthiness of Manitoba  
11 debt, and by extension also the credit-worthiness of Manitoba Hydro. Unfortunately, these agencies do not agree with  
12 each other on some important issues and conclusions. However, that very disagreement highlights the fact that credit  
13 rating agency opinions are independent conclusions of competing groups of analysts, each selling their analyses to  
14 purchasers in the capital markets. Each of the opinions is an important data point that may be useful to bond  
15 investors, but none of them appear to be directly determinative of capital markets behaviour.

16

	<b>DBRS</b>	<b>Moody's</b>	<b>S&amp;P</b>
Manitoba Credit Rating	A high	Aa2	A+
Relative Ranking	BC SK ON <b>MB</b> , NB, QC NF	BC, SK <b>MB</b> , NB, ON, QC NF	BC SK QC <b>MB</b> , NB, ON NF
Manitoba Hydro is "self-supporting"	Yes	Yes	No

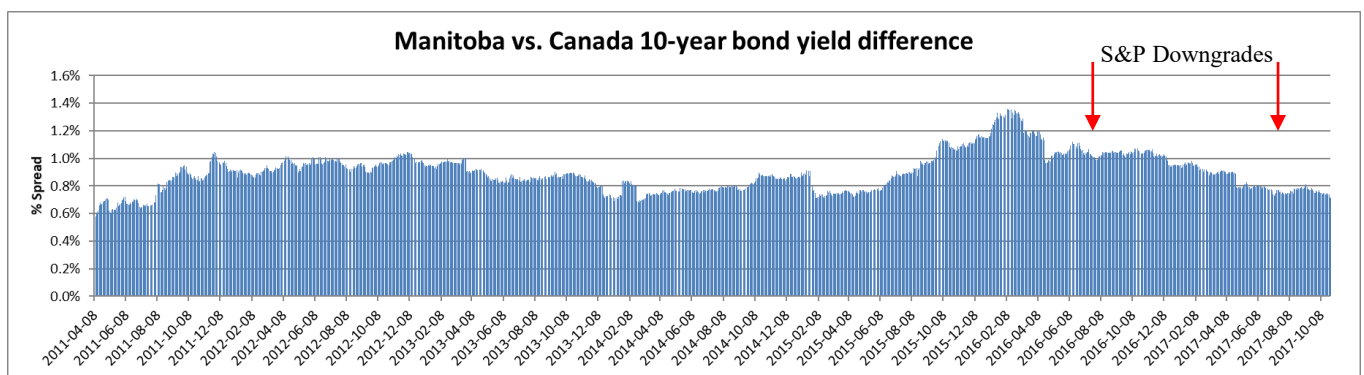
17

18 A critical issue in the three agencies' analysis of Manitoba finances is whether they consider Manitoba Hydro to be  
19 financially "self-supporting". Both DBRS and Moody's maintain that because Manitoba Hydro is expected to continue  
20 to service all of its debt through electricity revenues, Manitoba Hydro debt should not be included in the calculation of  
21 the provincial government's "tax-supported" indebtedness, and therefore does not affect consideration of the  
22 province's credit metrics and credit rating. S&P, on the other hand, has taken the position – only since July 2016 –  
23 that all of Manitoba Hydro's debt should be considered "tax supported". Simultaneously with its release of an opinion  
24 reflecting this change, S&P also downgraded the province's credit rating from AA to AA-. A year later, in July 2017,

<sup>20</sup> As reported on page 57 of Appendix 4.5 by KPMG, Manitoba Hydro's net debt was the largest proportion of provincial net debt out of the provinces surveyed, including British Columbia, Quebec, New Brunswick and Newfoundland. Given Nalcor's planned expenditures on the Muskrat Falls hydroelectric project and BC Hydro's planned expenditures on the Site C hydroelectric facility, however, this status may change over the coming years.

1 S&P downgraded the province's rating further, from AA- to A+. Over this period, the other two agencies did not  
2 amend their credit ratings for Manitoba.

3 One way to shed some light on the relationship between credit ratings and the behaviour of actual bond investors is  
4 to examine the record of the spread in yields for Manitoba vs. Canada bonds. This spread represents the difference  
5 in perceived risk as between the Government of Canada (rated at the highest possible level by all three credit rating  
6 agencies) and the Government of Manitoba. Below is a chart showing the difference in yields for Manitoba 10-year  
7 bonds versus Canada 10-year bonds from April 2011 to October 2017. It is clear from even a cursory glance at this  
8 chart that the spread is constantly changing, due to a whole range of factors, but that rating actions do not appear to  
9 have much of an impact. The spread was actually lower in late 2016, after the S&P downgrade, than it was in early in  
10 2016, when S&P still labeled Manitoba with a higher rating. Similarly, during July 2017 the spread was actually  
11 declining when S&P delivered its most recent downgrade. Canada's rating was stable throughout his period.



12 Source: Bloomberg  
13

14 Nevertheless, the question of whether the debt of Manitoba Hydro is a financial burden to the Government of  
15 Manitoba is an extremely important one, and regardless of their conclusion on the matter, all three of the agencies do  
16 address this issue.

17 Under what circumstances would Manitoba Hydro be a financial burden to the Province of Manitoba? DBRS provided  
18 a clear explanation in its recent report on the Province of Manitoba: "DBRS fully expects the utility to recover its costs  
19 from the electricity rate base. As such, DBRS will continue to exclude the hydro-related debt from the calculation of  
20 tax-supported debt."<sup>21</sup> This recent statement reiterates a more comprehensive statement made in a November 2016  
21 Rating Report on Manitoba Hydro:

22 *DBRS continues to view Manitoba Hydro as self-supporting, as its earnings and cash flows continue to be*  
23 *sufficient to cover its operating expenses and to service its outstanding debt. However, DBRS could*  
24 *consider reclassifying a portion of the Utility's debt to be tax-supported should the financial health of the*  
25 *Utility deteriorate to the point where its expenses cannot be recovered through rates. If this were to occur, it*  
26 *could potentially put downward pressure on the Province's credit rating. Similarly, a large equity injection by*  
27 *the Province that materially increases tax-supported debt could also put downward pressure on the*  
28 *Province's credit profile. At this time, however, DBRS expects the Province's ratings to remain stable.*<sup>22</sup>

<sup>21</sup> DBRS, Province of Manitoba Rating Report, 12 July 2017, page 6.

<sup>22</sup> DBRS, Manitoba Hydro Electric Board Rating Report, 25 November 2016, page 2.

1 If DBRS were to come to the conclusion that Manitoba Hydro was not able to recover its costs from the electricity rate  
2 base for any extended period of time, then they would be forced to reconsider their exclusion of Manitoba Hydro debt  
3 from the Province's credit metrics.

4 Moody's echoes the position of DBRS: "Given its revenue stream that generates sufficient cash flow to support  
5 operations including interest payments, we view Manitoba Hydro as a self-supporting entity and therefore exclude the  
6 related debt from our debt metrics of the province."<sup>23</sup> However, Moody's goes on to clarify that "The anticipated  
7 increase in debt has put growing pressure on the province's rating since it raises the contingent liability of the  
8 province (anticipated to exceed 40% of the province's total debt by 2017-18) and has increased the risk that  
9 Manitoba Hydro could require a capital injection or other support from the province." Were Manitoba Hydro cash  
10 flows insufficient to satisfy its needs, or if Manitoba Hydro were to require some form of extraordinary support from  
11 the Province, then Moody's would reconsider its position.

12 In the case of both DBRS and Moody's, the determination of whether Manitoba Hydro's debt is a financial burden for  
13 the province is focused on cash flow. This emphasis on cash flow is consistent with typical definitions of insolvency  
14 (the inability to satisfy financial obligations), which is what bond investors are ultimately most worried about. Manitoba  
15 Hydro must continue to cover its costs, and in particular including its debt interest costs, without any external support  
16 from the Province. Failure to do so would call into question Manitoba Hydro's viability as a standalone entity, and  
17 result in at least some portion of its debt being determined to be "supported by the Province", to the potential  
18 detriment of the Province's credit rating.

19 S&P recently has taken a different position. In its December 21, 2015 rating report, S&P stated that "The province  
20 also borrows and on-lends to Manitoba Hydro, which we view as self-supporting."<sup>24</sup> No additional commentary was  
21 provided at that time clarifying why Manitoba Hydro was regarded as self-supporting, but this position had been  
22 consistent for many years. In its rating action six months later, however, S&P makes a statement about the  
23 "significant debt on-lent to the MHEB, which we no longer consider self-supporting mainly due to its high and rising  
24 leverage."<sup>25</sup> Apart from this statement, which is reiterated elsewhere in the report, there is no explanation given for  
25 the significant change in the S&P's position on the matter. One additional clue may be the statement that Manitoba  
26 Hydro "could produce considerable liabilities for the province. In our view, the government would be likely to support  
27 the utility in the event of financial distress. We believe that any such support would be limited to less than 10% of the  
28 province's consolidated operating revenues."<sup>26</sup> This statement points to the possibility that the risk of cash flow  
29 distress at Manitoba Hydro has caused S&P to reconsider its position on Manitoba Hydro being self-supporting,  
30 particularly given that increasing debt may increase the potential for financial distress. One additional consideration in  
31 the comparison of the two positions is that the "Primary Credit Analyst" for the Manitoba credit rating changed  
32 between the older and more recent reports. While S&P states that it follows a "committee" approach to making credit  
33 decisions, the possibility remains that a change in key personnel had some involvement in the changed position with  
34 respect to Manitoba Hydro's debt.

35 In any case, S&P's emphasis on "high and rising leverage" as a primary driver of a change of position with respect to  
36 self-supporting status is surprising, because it runs counter to S&P's own basic criteria for credit ratings. S&P  
37 emphasizes cash flow metrics as the basic determinant of financial risk, as opposed to capital structure metrics,

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<sup>23</sup> Moody's, Province of Manitoba Update, 24 February 2017, page 4.

<sup>24</sup> S&P, Province of Manitoba, 21 December 2015, page 4.

<sup>25</sup> S&P, Province of Manitoba, Research Update, 14 July 2016, page 2.

<sup>26</sup> Ibid., page 4.



1 which are considered only as one factor among several which are used to refine ratings. This priority is clearly set out  
2 in the following excerpt from S&P's "General Corporate Methodology":<sup>27</sup>

3 *11. The corporate analytical methodology organizes the analytical process according to a common  
4 framework, and it divides the task into several factors so that Standard & Poor's considers all salient issues.  
5 First we analyze the company's business risk profile, then evaluate its financial risk profile, then combine  
6 those to determine an issuer's anchor. We then analyze six factors that could potentially modify our anchor  
7 conclusion.*

8 *12. To determine the assessment for a corporate issuer's business risk profile, the criteria combine our  
9 assessments of industry risk, country risk, and competitive position. Cash flow/leverage analysis determines  
10 a company's financial risk profile assessment. The analysis then combines the corporate issuer's business  
11 risk profile assessment and its financial risk profile assessment to determine its anchor. In general, the  
12 analysis weighs the business risk profile more heavily for investment-grade anchors, while the financial risk  
13 profile carries more weight for speculative-grade anchors. [Note: emphasis added]*

14 *13. After we determine the anchor, we use additional factors to modify the anchor. These factors are:  
15 diversification/portfolio effect, capital structure, financial policy, liquidity, and management and governance.  
16 The assessment of each factor can raise or lower the anchor by one or more notches--or have no effect.  
17 These conclusions take the form of assessments and descriptors for each factor that determine the number  
18 of notches to apply to the anchor. [Note: emphasis added]*

19 *14. The last analytical factor the criteria call for is comparable ratings analysis, which may raise or lower the  
20 anchor by one notch based on a holistic view of the company's credit characteristics.*

21 S&P further defines seven metrics that it focuses on with respect to cash flow (Note: the first two are the primary  
22 metrics, and the other five are secondary), the sheer number of which provides an illustration of the level of focus on  
23 cash flow in S&P's typical financial risk analysis. These are:<sup>28</sup>

- 24 - Funds From Operations (FFO) : Debt
- 25 - Debt : EBITDA
- 26 - Cash Flow From Operations (CFO) : Debt
- 27 - Free Operating Cash Flow (FOCF) : Debt
- 28 - Discretionary Cash Flow (DCF) : Debt
- 29 - FFO + Interest : Cash Interest
- 30 - EBITDA : Interest

31 Some of these measures rely on accrual accounting (from the Income Statement), and some are based in cash  
32 accounting (from the Cash Flow Statement), but all of them are designed to reveal whether an enterprise has the  
33 capacity to continue to meet its obligations.

<sup>27</sup> S&P, Criteria: General Corporate Methodology, published 19 November 2013.

<sup>28</sup> Ibid., paragraphs 101 to 103.

1 The emphasis that S&P normally places on cash flow metrics is consistent with the positions taken by Moody's and  
2 DBRS with respect to Manitoba Hydro's self-supporting status: Manitoba Hydro is self-supporting as long as its cash  
3 flows continue to be sufficient to covers its costs, including its debt costs.

4

#### 5 *Comparison to Other Pure Cost Recovery Electricity Providers*

6 Manitoba Hydro's Canadian peer group does not include any utilities which are operated on a pure cost recovery  
7 basis. Each of them has shareholder equity and makes dividend payments to a parent, if financially feasible.

8 Dividend payments represent a financial cushion which could be reduced or eliminated in times of financial distress  
9 (and in some cases this has occurred in the recent past). Manitoba Hydro does not share this ability.

10 Three of the United States utilities described above do share Manitoba Hydro's economic model of pure cost  
11 recovery, and each of these has an independent investment grade credit rating, despite the fact that two have Debt :  
12 PPE ratios which are higher than Manitoba Hydro's.<sup>29</sup> There are obviously many factors which contribute to the  
13 assessment of the credit worthiness of these companies, however a critical characteristic in all cases is a focus, both  
14 internally to them and among the rating agencies that review their credit-worthiness, on the sufficiency of cash flows  
15 to cover credit costs (i.e., Cash Flow : Interest metrics, or Debt : Cash Flow metrics), the ability to adjust cash flows in  
16 the face of financial distress, and the availability of sufficient liquidity to manage short term financial distress should it  
17 arise. Debt : Capital ratios are always included in ratings analysis, but they are not primary in the analysis, since the  
18 focus is always on cash flow sufficiency.

19 Appendix E contains copies of the following documents, which provide an illustration of these positions:

- 20 - Fitch credit rating criteria for US public power companies (highlights that cash flow sufficiency, and the  
21 ability to adjust customer rates to maintain that sufficiency, is critical to ratings)
- 22 - Fitch ratings summaries for Tennessee Valley Authority and Long Island Power Authority Bonds
- 23 - Moody's full credit rating report for Bonneville Power Administration
- 24 - Moody's rating summary for Tennessee Valley Authority
- 25 - S&P full credit rating report for Bonneville Power Administration

26

#### 27 *Priority of Capital Structure Ratio for Manitoba Hydro*

28 This review of credit rating agency comments, both on Manitoba Hydro and on other pure cost recovery entities,  
29 raises questions about Manitoba Hydro's focus on Debt : Equity as the primary ratio of concern with respect to  
30 financial health. Throughout its application for new rates, Manitoba Hydro emphasizes the importance of ensuring the  
31 financial strength of the enterprise, principally as represented through the Debt : Equity ratio. However, this emphasis  
32 does not appear to be shared by analysts serving the capital markets, who appear to place a higher priority on cash  
33 flow metrics and the ability to adjust rates as required to match operational requirements. Certainly, the capital  
34 structure of a utility is important, and all analysts do recognize that, but few if any appear to make capital structure a  
35 centerpiece of their analysis in the way Manitoba Hydro does. This divergence between the narrative emphasized by

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<sup>29</sup> Manitoba Hydro has a Debt:PPE ratio of 82%. For the Bonneville Power Administration, the ratio is 93%; for the Long Island Power Authority it is 102%, while for the Tennessee Valley Authority it is only 65%.

- 1 Manitoba Hydro and the narrative typically pursued by capital markets analysts is potentially troubling. If the Debt :
- 2 Equity Ratio should not be the primary financial target of concern, then the setting of a goal for achieving a 75% ratio
- 3 in 2027, and building rate proposals around that goal, is also cast into doubt.

## 1 4. Risks, Rates and Financial Plans

2 In its forecasts and plans, Manitoba Hydro has included “base case” or “reference” assumptions for all required  
3 variables. Under those assumptions, different rate paths will lead to specific financial outcomes. Conversely, defining  
4 a desired outcome (such as a 75:25 debt to equity ratio in 2027) allows for the calculation of the rate path required to  
5 achieve the outcome under base case assumptions.

6 However, since the world never operates according to forecasts, it is important to consider what might happen to  
7 financial outcomes as variables deviate from their base cases. How likely is it that the variables will deviate from the  
8 base case? How far might they deviate, in what time frame? Will financial outcomes that result from those deviations  
9 still be acceptable? If not, what can be done about it? Is it necessary to make provision in advance for these potential  
10 outcomes, or can they be addressed if or when they arise? Can regulatory principles help to guide these choices?

11 Potential deviation from a base case is, of course, just another way to describe a risk.

12

### 13 **A. Nature, Magnitude and Expected Frequency of Manitoba Hydro Risks**

14 As an electricity utility, the risks that Manitoba Hydro faces can be grouped into five broad categories:

15 *Fuel Risk:* The vast majority of electricity produced and delivered by Manitoba Hydro is hydroelectric in nature.  
16 The “fuel” for this output is water, and hence the primary fuel risk faced by Manitoba Hydro is the risk of  
17 persistent drought conditions. Even ignoring prolonged or severe droughts, the “normal” variability in water  
18 inflows into the Manitoba hydroelectric systems causes significant fluctuations in the corporation’s annual  
19 financial results. Water is not the only fuel used in Manitoba, but all other resources, including wind, natural gas  
20 and imports, are minimal in comparison.

21 *Operating Risk:* This category encompasses the multitude of potential failures that could occur as part of the  
22 operation of an electric utility. Everything from storms damaging transmission infrastructure, to turbine or  
23 generator failure at major generation facilities, to labour disruption across the enterprise can be categorized as  
24 an operational risk.

25 *Construction Risk:* Manitoba Hydro is in the process of building two major projects (Keeyask and Bipole III) and a  
26 multitude of smaller undertakings. As has already occurred, construction projects face a range of possible ways  
27 in which their schedule or budget or both may be derailed, to the detriment to the corporation.

28 *Market Risk:* Manitoba Hydro must make forecasts and projections about its customers in order to understand  
29 and plan for delivery of its products and services in the future. In its particular case, Manitoba Hydro is heavily  
30 exposed to the growth rate in domestic demand for electricity, as well as both the demand and market price for  
31 exports. Manitoba Hydro does not face price risk in its domestic market, since rates are regulated on a full cost  
32 recovery basis.

33 *Monetary Risk:* As an enterprise which buys and constructs expensive equipment which will be operated over  
34 very long periods of time, Manitoba Hydro is particularly exposed to purely monetary variables, such as interest  
35 rates, inflation rates, and exchange rates.

36

1 *Fuel Risk*

2 Manitoba Hydro now has 104 years of data on water flows into the province's river systems. Using this data, the  
3 corporation can plot the likely physical output of its electricity generation facilities under a wide variety of conditions,  
4 and the financial consequences of each flow condition in a variety of different scenarios.

5 Water flows can vary enormously from year to year, with swings of up to 40%, as measured from the greater volume  
6 year. At the same time, flows can persist at above average or below average levels for significant periods. If a  
7 "severe drought" is defined as a period in which average water inflows for a five-year period are 85% of the historical  
8 average annual inflow, then such periods have occurred approximately 10% of the time over the past century. Put  
9 differently, and assuming both that water inflows are truly random on an annual basis and that the past 104 years is a  
10 representative sample of what will occur in the future,<sup>30</sup> then at the beginning of any given year, there is  
11 approximately a 10% chance that Manitoba is embarking on a five-year drought. This is a non-negligible risk.

12 The effects of water inflows are not financially symmetrical: in other words, high flows do not improve financial  
13 performance as much as low inflows harm it. This is because in times of exceptionally high inflows, water must be  
14 literally spilled out of reservoirs for a variety of safety and operational reasons. As a result, the mean financial case is  
15 actually associated with water inflows that are below the median. Manitoba Hydro has provided example scenarios  
16 for one specific year, 2017/18, for the operating income that results from the 104 water inflow cases under reference  
17 assumptions for domestic demand, interest rates, export prices, etc.<sup>31</sup> These illustrate the range of results that are  
18 possible, solely on the basis of alternative water flows. The chart on the next page is a graphical representation of the  
19 information provided.

20 The level of water inflows affects only three line items on the Manitoba Hydro Income Statement: Export Revenues,  
21 Water Rentals and Assessments Expenses, and Fuel and Purchased Power Expenses. Netting the three hydraulic  
22 line items provides a sense of the range of the impact that water availability can have on Manitoba Hydro's financial  
23 results (i.e., for each of the 104 water scenarios, the calculation Export Revenues – Water Rentals – Fuel and  
24 Purchased Power was completed. The result of each of those 104 calculations is a bar on the chart, which were then  
25 sorted in order from lowest to highest).

26 The mean of the financial results is \$192 million of net revenue from these three line items. The best result is \$250  
27 million, but the worst result is a loss of \$15 million. Bad water scenarios are very, very bad, but there are not many of  
28 them within the sample of 104 years. Only 6 water scenarios out of 104 result in net revenues of less than \$130  
29 million.

30 In each of the 104 scenarios, all of the line items on the financial statement are the same, except for the three water-  
31 related line items already identified. Keeping those three line items aside, if all of the remaining revenue and expense  
32 lines are netted out, the result is a net operating income of \$795 million. However, Depreciation and Finance  
33 Expense are together \$954 million. This means that before taking into account the three water-related line items  
34 (Export Revenues, Water Rentals, and Fuel), Manitoba Hydro would be suffering a net loss of \$159 million.

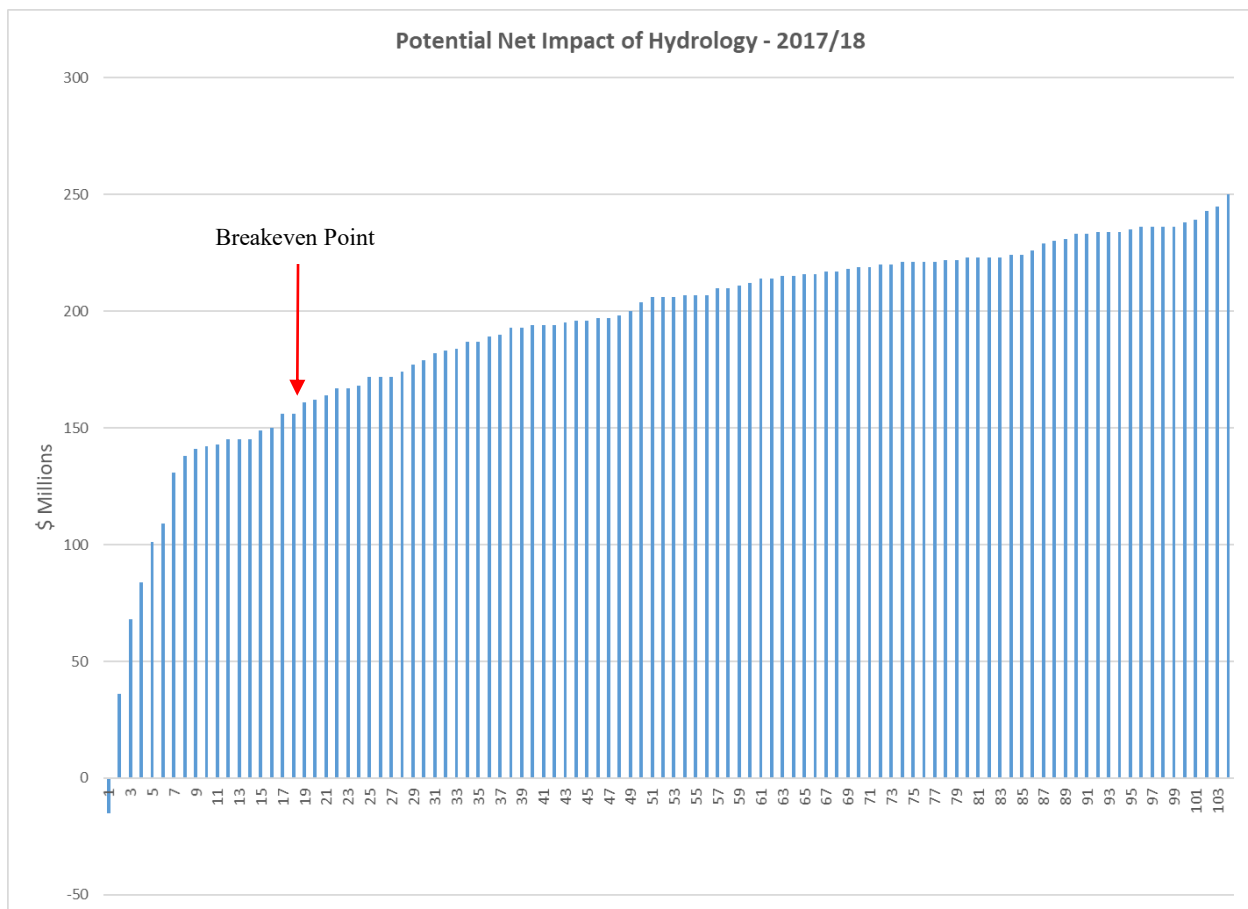
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<sup>30</sup> Note that these are VERY significant assumptions. For example, if water inflows are being affected by long-term changes in climactic conditions, such as climate change, then the past 104 years may not be a good sample of what will happen in the future.

<sup>31</sup> Please see the response to Coalition Round 2 IR-3(b) Attachment 1. This provides operating statement results for 104 different water scenarios for the 2017/18 financial year.

1 Of course, the three line items do need to be taken into account. Of the 104 water cases, only 18 result in net  
 2 hydraulic revenues below \$160 million, which means in only those 18 cases will Manitoba Hydro's net income be  
 3 negative. Approximately 79% of the time, Manitoba Hydro will have a positive net income (before regulatory  
 4 deferrals, non-controlling interests, etc.), at least in this example.

5 From the perspective of cash flows to cover interest costs, it is worthwhile to make two points. In this example, net  
 6 operating finance expense is \$558 million, and so it appears that EBITDA : Interest is always greater than 1,  
 7 regardless of hydraulic outcomes. However, not included in finance expense information provided in the table is  
 8 capitalized interest (which should be added to net operating finance expense), so cash flow metrics would be  
 9 somewhat worse than they appear.



10

11 Recall that this chart is just an example of one year, the estimate for 2017/18, and that in this particular year,  
 12 Manitoba Hydro has begun its analysis from the position of high water in reservoirs at the start of the year (because  
 13 water levels were extremely high in 2016/17). If the assumption had been made that reservoirs were at historically  
 14 average levels, then all figures would be lower, and the breakeven point would move to the right.

15 Unquestionably, fuel risk should be considered the most significant risk for Manitoba Hydro. In very low water years,  
 16 operating income will fall significantly, which will result in poor cash flow ratios, potentially negative net income, and  
 17 hence a deteriorating debt to equity ratio.

1 This inference is borne out by the analysis provided by Manitoba Hydro in Figure 4.4. of the Application, where a five-  
2 year drought has a more significant impact on retained earnings than any other variable examined, even though most  
3 other variables were examined over a ten-year period rather than just five.

4 Having said that, it is also true that over longer periods of time, a sustained water inflow below 85% of the average  
5 becomes less and less likely. While the financial consequences of drought can be intense, water inflows tend to  
6 revert to the mean over the longer term.

7

#### 8 *Operating Risk*

9 All utilities rely on systems of built infrastructure to deliver goods and services. This makes them very susceptible to  
10 disruptions based on equipment not performing as intended, whether caused by weather events, operator error, or  
11 deliberate disruption. This can range from the normal randomized failure of equipment based on wear and tear, all  
12 the way up to province-wide ice storms that can wreck entire systems of overhead wires.

13 Operation and maintenance costs are a relatively small part of Manitoba Hydro's revenue requirement. In the year  
14 ending March 31, 2017, they amounted to slightly more than 25% of total expenses. Assuming that most operating  
15 risks, if they were to materialize, might affect the operating and maintenance costs in one year only, then the  
16 magnitude of these risks in terms of potential impacts on financial outcomes is not very large. For example, even if an  
17 ice storm caused significant damage to overhead distribution lines, requiring a substantially increased expenditure on  
18 repairs, the entire episode would be complete with one year, having few ongoing effects.

19 Manitoba Hydro did not examine the potential financial outcomes of this class of risk in its application, and given the  
20 typical magnitude of operating risks, this is reasonable. However, there is an exceptional case. One of the primary  
21 reasons that the Bipole III transmission line is being built at a cost of multiple billions of dollars is exactly to mitigate  
22 an operating risk of enormous magnitude. Without Bipole III, Manitoba is exposed to the risk of massive system  
23 failure in the event that an ice storm, tornado or other weather event destroys existing north-south high voltage  
24 transmission lines in the province. In this scenario, Manitoba Hydro's ability to serve its customer base is significantly  
25 impaired, potentially for a substantial period of time. However, assuming that Bipole III enters into service as  
26 scheduled, the most significant possible operational failure for Manitoba Hydro will have been mitigated, and all other  
27 potential events that fall into this category are likely to be less severe, both in terms of the extent of possible damage,  
28 and the speed of recovery that would be possible.

29

#### 30 *Construction Risk*

31 Manitoba Hydro has already absorbed the news that both Keeyask and Bipole III are substantially behind schedule  
32 and over budget. These are two of the largest projects that Manitoba Hydro has ever undertaken (certainly in terms  
33 of current costs, if not physical size), and there are no plans to undertake anything remotely comparable for at least  
34 the next 15 years. The risk remains, however, that these projects, and in particular Keeyask, may not be completed  
35 according to the new schedule and timing included in the application as a base case assumption.

36 The financial consequences of being behind schedule or over budget can be significant. If the projects are over  
37 budget, then Manitoba Hydro will require additional debt above the assumed base case. This would in turn entail

1 more debt interest, putting pressure on cash flow ratios, and would also put downward pressure on debt to equity  
2 ratios. If Keeyask were to be behind schedule, then construction interest costs would continue to accumulate, and the  
3 new revenues associated with Keeyask would be delayed further into the future. Again, cash flow ratios would  
4 deteriorate, as would debt to equity ratios.

5 Manitoba Hydro provided one sensitivity analysis in its application showing the impact of a \$1 billion cost overrun  
6 above the current base case for the Keeyask plant. While the financial impact of this outcome would be significant, it  
7 would not be as damaging to Manitoba Hydro's financial outcomes as would be some other risks, and so additional  
8 information was not provided.

9 In response to PUB Round 2 IR 25, Manitoba Hydro provided financial analysis of a 32-month delay of the Keeyask  
10 Project. However, because of confidentiality concerns, this information was redacted. It is not clear whether the  
11 consequences of such a delay would be worse than, better than or equal to a \$1 billion cost overrun.

12

### 13 *Market Risk*

14 Manitoba Hydro produces and sells electricity. This is a valuable business to be in only if there are customers who  
15 wish to buy that electricity, at prices high enough to cover the costs of production and delivery. Domestic customers  
16 have no choice with respect to the price of electricity, given its regulated nature. However, the volume of domestic  
17 demand can and does change over time. Other reports in this regulatory process examine the validity of the base  
18 case domestic demand forecast provided by Manitoba Hydro, and the appropriate magnitude of the upside and  
19 downside alternatives. For the purposes of financial risk, however, it is sufficient to point out that the low-growth case  
20 as Manitoba Hydro modelled it has very limited impact on financial outcomes, even with a fixed rate path. Domestic  
21 demand would have to be dramatically lower than the base case assumption in order to have a significantly negative  
22 impact on cash flow or capital structure ratios. This is theoretically conceivable over the longer term, especially given  
23 increasing technological change making conservation and demand management easier to implement, but the  
24 magnitude of the decline in domestic demand would have to be extremely significant before financial outcomes were  
25 strongly affected.

26 Manitoba Hydro exports its excess power, principally into the MISO market. That market is over ten times larger than  
27 the Manitoba electricity system, both in terms of instantaneous capacity requirement, and energy consumed per year.  
28 Manitoba Hydro is therefore a small player that should not be assumed to significantly affect that market. It is fair to  
29 assume that if Manitoba Hydro is willing to simply be a price taker in the MISO market (including \$0 for power on  
30 some occasions), then Manitoba Hydro will be able to sell all of its surplus output. Effectively, there is no demand risk  
31 for Manitoba Hydro exports into the MISO market. However, from a price perspective, Manitoba Hydro is completely  
32 at risk.

33 In Manitoba Hydro's financial model, export prices are directly related to cash flow and net income. As a result, any  
34 deterioration in export prices below the base case causes cash flow and capital structure ratios to decline.

35 Other experts are commenting on Manitoba Hydro's base case export price forecast, and on the reasonableness of  
36 the high and low alternative forecasts. From a financial performance point of view, however, it is notable that  
37 Manitoba Hydro's own low alternative forecast caused significant deterioration in financial outcomes. Export prices  
38 are one of the three variables to which the financial model is most sensitive (along with drought risk and interest rate



1 risk). If other experts conclude that export prices could be even lower than projected by Manitoba Hydro, then  
2 financial outcomes could suffer further.

3

#### 4 *Monetary Risk*

5 Numerous monetary variables must be included in any modeling or forecasting exercise. The most obvious are  
6 interest rates, general inflation rates, and currency exchange rates. Greater refinement is possible by considering  
7 rates for specific subsectors of the economy (e.g., industrial goods inflation vs. consumer inflation, long-term vs.  
8 medium term vs. short-term interest rates, etc.).

9 Some of these rates are interlinked: for example, inflation rates and interest rates typically move together (though not  
10 always), and as a result if a scenario includes rising interest rates, some of that risk might also be reflected in higher  
11 inflation-based costs for labour, equipment and suppliers.

12 For Manitoba Hydro, inflation rates higher or lower than the base case would affect operating and maintenance costs  
13 (principally through higher labour costs), and the cost of capital goods. Manitoba Hydro did not provide any analysis  
14 of the financial impact of alternative inflation rates in the Application. This may be reasonable, because inflation rates  
15 have been relatively stable for the past decade, and the Bank of Canada remains committed to managing national  
16 monetary policy in such a way as to keep inflation rates stable within a target band.

17 Exchange rates varying from the base case would directly affect the value of electricity exports, but would also have  
18 an impact on the cost of equipment, supplies and capital goods, since many of these are purchased from abroad.  
19 These two pressures would be contradictory: a lower Canadian dollar would increase the value of exports, but would  
20 make supplies and capital goods more expensive, slightly mitigating the overall impact. Manitoba Hydro modeled a  
21 swing of CDN\$0.10 above and below the base case assumption, and while the impact was measurable, it was  
22 substantially smaller than many other variables tested.

23 Interest rates are critical to Manitoba Hydro because of the overall debt burden that is resulting from the Keeyask and  
24 Bipole III projects. Historically, Canadian interest rates have been variable, changing with economic conditions, but  
25 for the past decade they have remained low and stable to an unprecedented degree. However, since Manitoba Hydro  
26 filed its application in May of this year, the Bank of Canada has increased its policy rate two times (for a total increase  
27 of 0.50%). This development was not anticipated in Manitoba Hydro's base case interest rate forecast, and raises the  
28 possibility that rates could move faster and higher than anticipated. Manitoba Hydro did examine the consequences  
29 of interest rates being 1% higher than anticipated in the base case, and this had a significant impact on financial  
30 outcomes, both for cash flows and capital structure.

31

#### 32 *Risk Modeling*

33 Based on its sensitivity analysis, Manitoba Hydro selected three risks for further investigation: water risk, interest rate  
34 risk, and export price risk. Most other risks were much less significant from the perspective of affecting financial

1 outcomes, as described above, and so justifiably were not examined further. However, construction risks associated  
2 with Keeyask were also significant, but unfortunately were not investigated.<sup>32</sup>

3 In Tab 4 of the application, Manitoba Hydro provided the results of 918 modeling runs for each of two rate paths. 102  
4 water inflow scenarios were tested for each of three interest rate scenarios and each of three export price scenarios  
5 ( $102 * 3 * 3 = 918$ ). The financial outcomes, in terms of financial results like net income and retained earnings, or  
6 ratios such as cash flow and debt to equity, for these modeling runs were recorded, and then summarized in the  
7 manner of “box and whisper” plots.

8 This method of presentation provides the range of annual outcomes for each metric that was examined (e.g., debt to  
9 equity ratio, interest coverage ratio, net income, etc.), but does not provide any information on how each of the 918  
10 runs link from year to year. For example, in one year a run may produce the worst outcome in terms of a metric (e.g.,  
11 net income), but in the next year the same run may have a much improved net income which is no longer at the  
12 bottom of the list. While it is valuable to know what the range of outcomes might be for a given variable in any given  
13 year, it would also be valuable to better understand the multi-year performance of Manitoba Hydro under different  
14 conditions.<sup>33</sup> Doing this type of analysis would require access to the full output of the 918 modeling runs, not just box  
15 and whisper plots. Unfortunately, the full output from these modeling runs could not be made available by Manitoba  
16 Hydro, so there was no opportunity to examine financial outcomes in detail.<sup>34</sup>

17 Some observations are nevertheless possible, based on the information made available by Manitoba Hydro.

18 *Analysis Based on Original Application:* The 918 modeling runs were based on the rate path and assumptions of  
19 the original application in May, and not the updated rate path presented after the PUB decision on interim rates  
20 in August. Nevertheless, the analysis is still useful in providing directional indications about risks and financial  
21 outcomes.

22 *Only Two Rate Paths Contrasted:* The 918 modeling runs were repeated twice, once with 7.9% rate increases,  
23 and once with 3.95% increases. It was assumed that no deviation from these paths was possible, regardless of  
24 the consequences. This assumption is clearly not realistic, but does help to simplify insights that can be made.

25 *Interest Coverage Ratio and Capital Coverage Ratio:* These box and whisper plots were not provided in Tab 4,  
26 however they were provided in response to IRs.<sup>35</sup> Given the importance of cash flow coverage ratios to credit  
27 rating agencies and the capital markets, these plots provide valuable information about the risks facing Manitoba  
28 Hydro.

29 *Interest Coverage Remains Above Critical Throughout on the 3.95% Rate Path:* At the P01 position of the  
30 EBITDA to Interest plot on the 3.95% rate path, the ratio is never below 1. It should be noted that a ratio of 1

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<sup>32</sup> Assuming a linear relationship between cost overrun and impact on Manitoba Hydro financial outcomes, a \$2 billion cost overrun from the base case budget of Keeyask would be approximately equivalent to a 1% across the board increase in interest rates. It may have been useful to investigate further this possibility, or the possibility of an additional delay in project completion.

<sup>33</sup> Another type of analysis which could usefully be performed given access to the raw data is to determine whether any single variable drives a majority of the worst outcomes. For example, in the worst water inflow years, does it matter what export prices or interest rates are? If the 9 worst outcomes are all the result of a particularly bad water year, then interest rates and export prices are simply much less important variables. This is particularly relevant to the question of what types of risks deserve to be protected through “reserves”.

<sup>34</sup> Please see the response to Coalition Round 2 IR-2.

<sup>35</sup> Please see the response to Coalition Round 2 IR-1.

1 means that operating income is just sufficient to cover finance expense costs. In the parlance of the Moody's and  
2 DBRS, as long as Manitoba Hydro is able to continue to cover all of its costs – including operating costs and  
3 interest – it will continue to be regarded as “self-supporting”, and not a burden to the Province. Admittedly, the  
4 P01 position in the plot means that 9 model runs are actually below the numbers listed for each year, and it is  
5 not possible to know from the data if any runs actually resulted in interest coverage ratios below 1. However, it  
6 should be noted that it is unlikely that any given run remains at the low position for very long, and so the average  
7 capital coverage ratio for any single run (in other words, for any single future) should actually be comfortably  
8 higher. At the P50 position, the 1.8x target is exceeded in more than half of the years of the model, but not  
9 generally until later in the 2020s.

10 *Interest Coverage is Very High on the 7.9% Rate Path:* It is notable that on the 7.9% rate path the interest  
11 coverage ratio is comfortably above the 1.8x target for virtually the whole period at the P20 position. Even at the  
12 P01 position the 1.8x target is met in the later years of the model. At the P50 position, the 1.8x target is met and  
13 exceeded almost immediately, and is substantially exceeded in most years.

14 *The 3.95% Rate Path Cannot Be Followed by 2% Increases:* In the modeling presented, the 3.95% rate path  
15 includes increases at that level from 2017/18 until 2028/29, and then 2% per year thereafter. However, reducing  
16 the rate increases to 2% per year results in significant risk to the corporation after 2030. While the interest  
17 coverage ratio remains above critical levels throughout, net income actually becomes negative at the P20  
18 position for more than half of the years of the model. The equity ratio becomes negative at the P01 position in  
19 2030, and in the P05 position it reaches 1% in 2032. It is not clear why annual rate increases were not kept at  
20 3.95% for additional years beyond 2028/29, but based on this modeling, it would definitely be necessary.

21 *On the 7.9% Path Rates Would Likely Fall After 2030:* At the P50 position on the 7.9% rate path, the target  
22 equity ratio of 25% is reached as of March 2027. After that year, the equity ratio continues to rise at the P50  
23 position, despite only 2% rate increases. This suggests that rates would either have to be frozen or reduced, to  
24 prevent an unnecessary build-up of equity.

25 The true value of the scenario modeling is to highlight what kind of situations could be problematic, in order to  
26 prepare for them. The limited nature of the data provided prevents a more thorough analysis of the individual runs  
27 that show the most significant downside risks for Manitoba Hydro financial outcomes, but even the limited data  
28 provided by Manitoba Hydro allows for the drawing of some useful inferences.

29 Assuming the downside cases of the examined variables are reasonable, the analysis shows that the 3.95% rate  
30 path is reasonably robust from a cash flow perspective for the first 10 years of the modeling period. After 2030,  
31 however, reducing the rate path down to 2% increases exposes the corporation to too much risk.

32 If a reasonably cautious standard to use is to choose an option which is feasible 95% of the time (which is the  
33 Bonneville Power Administration criteria), then the 3.95% percent option appears to qualify. There is no question that  
34 situations could arise which require further action beyond a 3.95% rate path, but they will be rare.

### 35 36 **B. Options to Financially Manage Risks**

37 The previous section demonstrated that combinations of factors can arise which undermine the best laid plans. Even  
38 in the 7.9% rate path, there are scenarios where interest coverage is insufficient. At 3.95% rate increases, more of

1 this would be evident. However, in many scenarios distress does not arise. As noted above, cash flow is many times  
2 higher than necessary in a majority of the scenarios with the 7.9% rate path, and is adequate in most scenarios  
3 under the 3.95% rate path.

4 What are the available responses, knowing that such distress situations could arise? Several options appear to be  
5 available to Manitoba Hydro:

6 *Build Up Cash Reserves in Advance:* This is the “preventative medicine” approach. In effect, Manitoba Hydro  
7 would be building up its liquidity reserves in order to protect against relatively low likelihood combinations of  
8 challenges. Normally, liquidity reserves are limited and only intended to help manage the inevitable disconnect  
9 between accounts payable and accounts receivable, and other short term accounts, but Manitoba Hydro could  
10 choose to build up a “drought fund”, for example, which could be called up on in the case of distress.

11 *Pay Down Debt:* Another form of preventative medicine, similar to the building of cash reserves. In this case,  
12 debt principle is repaid faster than the amortization of utility assets. This means that ratepayers must be charged  
13 rates that are higher than necessary for cost recovery purposes, but in the event of financially stressful  
14 situations, the corporation could simply borrow to cover its exceptional requirements. This is essentially the  
15 strategy being recommended by Manitoba Hydro in seeking a 7.9% rate increase to facilitate the goal of  
16 achieving a 25% Debt : Equity Ratio by 2027.

17 *Cost-cutting:* In the event of distress, be prepared to reduce costs significantly, in order to increase net cash flow  
18 from available revenues. A “wait and see” strategy, that depends on the willingness of the company to act  
19 decisively in the event of distress.

20 *Increase Rates:* If a significant risk materializes, then be prepared to raise rates on domestic customers to  
21 increase cash flows. Also a wait and see strategy.

22 Essentially, these are two strategies with two variants each. Practically speaking, one of each pair can be eliminated  
23 from consideration.

24 In the first pair, building up a cash reserve vs. paying down debt, the former represents a much more significant  
25 opportunity cost than the latter. All businesses require some amount of liquidity to manage unpredictable cash flows  
26 in the short term. However, maintaining liquidity is expensive because cash or “near cash” financial instruments earn  
27 very little return. Paying down debt, on the other hand, has the benefit of reducing interest payments, and therefore  
28 serves to improve cash flow metrics, as well as improving the debt to equity ratio of a company. Paying down debt is  
29 not a substitute for necessary liquidity, because issuing large amounts of debt takes time, and the essence of liquidity  
30 is the ability to respond to financial needs quickly. But liquid assets are not required to respond to a deeper challenge  
31 such as a multi-year drought: debt can serve that purpose well, and at less cost.

32 Cost-cutting and increasing rates are both initiatives that can be taken in response to distress, at the time the distress  
33 occurs. However, practically speaking, cost-cutting is limited by the need to continue to deliver utility services to  
34 customers: only so many costs can be cut while remaining in business. Moreover, utilities are under a general  
35 obligation to operate as efficiently as is reasonably possible. To assume that there is sufficient “fat” in a utility that  
36 would allow it to painlessly cut costs in the face of financial distress is equivalent to making the assumption that it is  
37 permanently inefficient, except when a crisis arises. Even if some amount of cost-cutting is feasible (as we see in the  
38 recently announced cost-cutting program from Manitoba Hydro), it is unlikely that cost-cutting alone would suffice to

1 address the kinds of “P01” situations that were highlighted in the previous section, when multiple factors act  
2 simultaneously to create financial distress for a utility.

3 The four options to manage risk essentially collapse into two: paying down debt to create reserves that may be  
4 accessed when financial distress conditions rise, or responding to financial distress with rate increases. The next  
5 section will explore the pros and cons of managing risk in these two ways, through the lens of regulatory principles.

6

### 7 **C. Regulatory Principles and Risk Management**

8 As was described in the previous section, one version of a summary list of regulatory principles would be the  
9 following:

- 10 • Monopoly Utility Customer Service
- 11 • Economic Efficiency
- 12 • Cost Causality
- 13 • Stability and Predictability
- 14 • Prudence
- 15 • Public Interest
- 16 • Access to Capital Markets

17 Of these principles, the Customer Service and Prudence principles have the least bearing on the question at hand.  
18 Whether rates are raised now to generate funds to pay down debt, or rates are raised in the future if a financial  
19 distress situation arises, customer service is not affected either way. Admittedly, if severe cost-cutting were to be  
20 considered as an option, then the Customer Service principle would need to be considered, but for the reasons  
21 described above, cost-cutting is not considered relevant.

22 Prudence is often a catch-all term which is used ambiguously. However, in this case it is understood to have a  
23 procedural meaning, rather than a substantive meaning. The prudence principle requires that utilities consciously  
24 exercise good judgement through careful review and consideration of applicable risks before making decisions. In  
25 this case, a careful and deliberate choice between two methods of responding to potential future challenges is being  
26 considered, which is the essence of prudence. Prudence does not dictate the pros and cons of a choice, it only  
27 demands that the pros and cons be fairly and thoroughly considered.

28 The remaining five principles are all very much relevant to the choice of strategy to prepare for and potentially  
29 respond to future financial distress, and each will be considered in turn.

30

#### 31 *Economic Efficiency*

32 Manitoba Hydro is proposing a rate path based on 7.9% rate increases, versus other options. This does not affect  
33 internal operations in any way, and so does not affect efficiency in an engineering or physical sense. However,  
34 Manitoba Hydro has claimed that paying down debt is an efficient use of ratepayer money, because it reduces  
35 interest costs in the long run, and protects against financial distress. In essence, the use of ratepayer capital beyond  
36 what is strictly required for the immediate operation of the utility in real time is an efficiency question.

1 The primary reason Manitoba is proposing an aggressive series of rate increases is to build up the reserves of the  
2 corporation (by paying down debt), and therefore reduce the likelihood that dramatic rate increases will be required in  
3 the future in response to a financial distress situation. This creates two possibilities that should be examined: a future  
4 where financial distress does not occur, and one where financial distress does test the company.

5 If reference assumptions were to actually persist for the next 19 years, then the financial outcomes for Manitoba  
6 Hydro might be consistent with the model presented in response to Coalition Round 2 IR 6 and IR 7. Manitoba Hydro  
7 calculated a future 7.9% rate path where a 75% debt ratio was achieved in 2027, and then domestic rates were  
8 adjusted annually to keep the debt ratio at 75% permanently. As a comparison, a different rate path was calculated  
9 under the same assumptions, with annual increases of 3.95% per year until a 75% debt ratio was achieved by March  
10 2034, after which time rates were adjusted to maintain the 75% debt ratio.

11 These two financial projections highlight how differently rates and customer costs can turn out under a single set of  
12 financial assumptions, but maintaining all other things equal. Resulting rates are set in the tables on the next page.

13 If rates are increased by 7.9%, then by the end of 10 years, when the target 75:25 Debt : Equity Ratio is achieved,  
14 rates will have increased by approximately 77% in nominal dollar terms. In inflation-adjusted terms (assuming annual  
15 inflation of 2%), they will have increased by approximately 46%. If a ratepayer had purchased the same amount of  
16 power every year (1000 units), then the consumer will have spent 14,412 over that time period. In inflation-adjusted  
17 terms, the cumulative cost would be 12,816. However, in the next year, because the debt to equity ratio target had  
18 already been reached, rates could come down significantly, and in the 2030s price increases would be either modest  
19 or negative. By 2036, the last year of the model, nominal prices would be 44% higher than today, and would actually  
20 have fallen in inflation-adjusted terms.

21 Alternatively, if a 3.95% rate path were followed for the next ten years, rates would be lower, and cumulative costs  
22 would be lower, both in nominal dollar and inflation-adjusted dollars. However, the debt to equity ratio of the company  
23 would not be 75:25. In fact, rates would peak at 92% higher than today in 2034, when the debt target is achieved,  
24 and only then would rates come down somewhat. By 2036, prices in the two rate paths will have almost equalized,  
25 both in nominal and inflation-adjusted terms. However, the cumulative cost of power in the 3.95% rate path is actually  
26 slightly higher than for the 7.9% rate path, over the total 19-year period covered. In inflation-adjusted terms, the  
27 3.95% rate path has lower cumulative costs until 2034, but then becomes slightly more expensive.

28 This comparison suggests that over a long period of time, under reference assumptions, the 7.9% rate path will  
29 actually be more economically efficient, in inflation-adjusted terms. This is the benefit that results from paying down  
30 debt early, rather than paying compounding interest costs over a long period of time.

31 This is far from a complete story, however. Nowhere in Manitoba Hydro's application has it considered the cost of  
32 capital that is applicable to its ratepayers. In the 7.9% rate path, ratepayers are paying more than in the 3.95% rate  
33 path for the same amount of electricity in years 2 through 10, and less in the next 9 years. In both cases the same  
34 amount of electricity is received, the only thing that changes is nominal price. This is a classic present value problem.

Rate path based on applied for 7.9% rate increase

Year Ending in March	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Change in Units																				
Annual Units Purchased	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Price Increase		3.36%	7.90%	7.90%	7.90%	7.90%	7.90%	7.90%	4.54%	2.00%	2.00%	-19.75%	-3.12%	-1.11%	1.81%	-1.05%	0.57%	0.40%	0.72%	3.26%
Nominal Price	1	1.03	1.12	1.20	1.30	1.40	1.51	1.63	1.71	1.74	1.77	1.42	1.38	1.36	1.39	1.37	1.38	1.39	1.40	1.44
Inflation	2%	1	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.20	1.22	1.24	1.27	1.29	1.32	1.35	1.37	1.40	1.43
Inflation-adjusted Price		1.01	1.07	1.13	1.20	1.27	1.34	1.42	1.46	1.46	1.46	1.15	1.09	1.05	1.05	1.02	1.01	0.99	0.98	0.99
Annual Nominal Cost of Power	1000	1,033.60	1,115.25	1,203.36	1,298.42	1,401.00	1,511.68	1,631.10	1,705.15	1,739.26	1,774.04	1,423.67	1,379.25	1,363.94	1,388.63	1,374.05	1,381.88	1,387.41	1,397.40	1,442.95
Cumulative Nominal Cost of Power		1,033.60	2,148.85	3,352.21	4,650.64	6,051.64	7,563.32	9,194.42	10,899.58	12,638.83	14,412.87	15,836.54	17,215.79	18,579.74	19,968.36	21,342.41	22,724.29	24,111.70	25,509.09	26,952.05
Annual Inflation-adjusted Cost		1,013.33	1,071.95	1,133.95	1,199.54	1,268.93	1,342.33	1,419.97	1,455.33	1,455.33	1,455.33	1,145.00	1,087.53	1,054.37	1,052.41	1,020.94	1,006.62	990.83	978.40	990.49
Cumulative Inflation-adjusted Cost		1,013.33	2,085.28	3,219.23	4,418.78	5,687.71	7,030.03	8,450.01	9,905.34	11,360.67	12,816.01	13,961.01	15,048.54	16,102.91	17,155.32	18,176.25	19,182.88	20,173.71	21,152.11	22,142.60

Rate path based on even annual rate increases of 3.95%

Year Ending in March	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Change in Units																				
Annual Units Purchased	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Price Increase		3.36%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	3.95%	-1.16%
Nominal Price	1	1.03	1.07	1.12	1.16	1.21	1.25	1.30	1.36	1.41	1.46	1.52	1.58	1.65	1.71	1.78	1.85	1.92	1.90	1.45
Inflation	2%	1	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.20	1.22	1.24	1.27	1.29	1.32	1.35	1.37	1.40	1.43
Inflation-adjusted Price		1.01	1.03	1.05	1.07	1.09	1.11	1.14	1.16	1.18	1.20	1.22	1.25	1.27	1.30	1.32	1.35	1.37	1.33	0.99
Annual Nominal Cost of Power	1000	1,033.60	1,074.43	1,116.87	1,160.98	1,206.84	1,254.51	1,304.07	1,355.58	1,409.12	1,464.78	1,522.64	1,582.79	1,645.31	1,710.29	1,777.85	1,848.08	1,921.08	1,898.79	1,447.45
Cumulative Nominal Cost of Power		1,033.60	2,108.03	3,224.89	4,385.88	5,592.72	6,847.23	8,151.30	9,506.87	10,916.00	12,380.78	13,903.42	15,486.20	17,131.51	18,841.80	20,619.65	22,467.73	24,388.81	26,287.60	27,735.04
Annual Inflation-adjusted Cost		1,013.33	1,032.71	1,052.45	1,072.57	1,093.07	1,113.97	1,135.27	1,156.97	1,179.09	1,201.63	1,224.60	1,248.02	1,271.87	1,296.19	1,320.97	1,346.22	1,371.96	1,329.46	993.57
Cumulative Inflation-adjusted Cost		1,013.33	2,046.04	3,098.49	4,171.06	5,264.13	6,378.10	7,513.37	8,670.34	9,849.43	11,051.06	12,275.67	13,523.68	14,795.56	16,091.75	17,412.71	18,758.94	20,130.90	21,460.35	22,453.93

1 Mathematical calculations on these scenarios give the result that a discount rate of 4.93% equalizes the discounted  
2 cumulative cost of power to ratepayers by 2036. However, customers in the 3.95% rate path will be paying less in  
3 cumulative discounted dollars throughout the entire period, until the final year. At discount rates lower than 4.93%,  
4 ratepayers in the 3.95% rate path will be better off for most of the period, but ratepayers in the 7.95% path will be  
5 better off towards the end. If the discount rate for customers is any higher than 4.93%, then ratepayers will always be  
6 better off in the 3.95% rate path.

7 This result makes sense, because there is a cost of capital (or time value of money) for everyone, ratepayers  
8 included. If a ratepayer pays less for their power today, then they will have more money available to pay down their  
9 own mortgage, or invest in a new business, or just buy something that they want. Manitoba Hydro cannot calculate  
10 the economic efficiency of proposed rate paths without taking into account the cost of capital to its ratepayers.

11 Some Manitoba Hydro ratepayers will have a higher cost of capital, while for others it will be lower. Given that  
12 Manitoba Hydro's ratepayers encompass almost all of the people in the province, it is arguable that a "social discount  
13 rate" should be used in this sort of calculation. There is an abundant academic literature around this subject, given its  
14 use in assessing long-term government programs (and conceptual problems like the cost of climate change). In  
15 Canada, recent government studies have landed on using a 3% real discount rate for many uses, consistent with  
16 recent decisions of the US government.<sup>36</sup> In the case of Manitoba Hydro, this would be a ratepayer cost of capital of  
17 5%, given the assumed 2% inflation rate.

18 Applying a discount rate to the rate paths does not complete the review of economic efficiency issues, however.  
19 Manitoba Hydro's main purpose in applying for a 7.9% rate path is to strengthen the company's ability to withstand  
20 financial distress, without subsequently raising rates beyond the intended path. For example, as was suggested  
21 above in the review of hydrological risk, a severe drought could cause a series of years where cash flows are  
22 constrained, and all of the company's financial metrics deteriorate. If this were to occur in the context of the 7.9% rate  
23 path, the presumption would be that Manitoba Hydro would not ask for rate increases higher than already planned  
24 (debt would presumably no longer fall to 75% in 2027, but would instead only fall to 75% later, after the drought was  
25 over and financial results recovered). On the other hand, if the 3.95% rate path were pursued, then rates might have  
26 to be increased in the face of a severe drought. In this case, the 3.95% rate path would morph into something new,  
27 with different financial outcomes, and costs to ratepayers.

28 Suppose the drought began on April 1, 2024 (the year ending March 31, 2025, or year 8 in the tables above). At that  
29 point, rates in the 7.9% rate path would already be 71% higher than today, and Manitoba Hydro would have reached  
30 an equity ratio 19% (with an Interest Coverage ratio in the year ending March 31, 2024 of more than 2.0x). A  
31 ratepayer may have paid 9,194 for power over the previous seven years, which discounted at 5% would be 7,488.  
32 Alternatively, the same position on the 3.95% rate path would be rates that are 36% higher than today, with seven  
33 years of power purchases amounting to 8,151, discounted at 5% to 6,687. Manitoba Hydro would be at a 13% equity  
34 ratio (with a 1.55x Interest Coverage Ratio in the previous year).

35 In that situation, Manitoba Hydro ratepayers would be unequivocally economically better off in the 3.95% rate path  
36 when the drought begins. They will have paid lower prices over seven years, and used their own money as they saw  
37 fit. If, because of the drought, Manitoba Hydro's rates needed to be adjusted upwards, there would be room to do so.

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<sup>36</sup> Please see the Technical Update to Environment and Climate Change Canada's Social Cost of Greenhouse Gas Estimates (March 2016), available at <http://ec.gc.ca/cc/default.asp?lang=En&n=BE705779-1> This document also provides references to recent work from the United States, as well as academic literature.



1 However, without knowing the severity and longevity of the drought, it would not be possible to calculate the point at  
2 which customers would no longer be better off. A whole range of scenario calculations would have to be done based  
3 on the probability associated with droughts, versus the discounted dollar impacts of the alternative rate paths, in  
4 order to calculate an optimal probability-weighted break even point. Manitoba Hydro did not address this issue in its  
5 application.

6 In effect, from an economic efficiency point of view, Manitoba Hydro assumed that ratepayers do not have a cost of  
7 capital, and considered financial issues only from the perspective of the corporation, not its ratepayers. Given the  
8 regulatory principle of economic efficiency, however, it may be valuable to consider ratepayer costs of capital in the  
9 formulation of rates.

10

### 11 *Cost Causality*

12 The principle of cost causality holds that ratepayers should pay only the cost of the services that they have received  
13 from a utility, and should not be required to pay costs that are attributable to others. This principle is important  
14 because it affirms that all ratepayers are equally valid and important, and should be treated equally well.

15 Given the long-lived and shared-use nature of utility assets, appropriately allocating the cost of developing and  
16 operating a utility system is necessarily approximate, both in terms of allocation between current customers, and  
17 allocating costs to customers over time. From a time perspective, depreciation is the critically important method of  
18 allocation, and straight line depreciation is a compromise that addresses the unknowability of exact wear and tear on  
19 long-lived assets over time. Appropriately allocating the cost of risks over time is conceptually challenging. As noted  
20 above, the frequency, duration and magnitude of negative outcomes is ultimately unknowable until they actually  
21 occur. Nevertheless, the utility must be prepared to meet these challenges should they occur, and ratepayers must  
22 pay for them. But which ratepayers?

23 Consider the example of a five-year drought. The historical record demonstrates that such droughts have occurred,  
24 and might do so again at any time. When they occur, droughts reduce revenues and raise costs, and the net impact  
25 must then be passed on to ratepayers, since Manitoba Hydro has no investors who are taking on any of that risk.  
26 When they occur, the costs of a drought could be charged to the ratepayers of the day through an immediate and  
27 severe rate increase, or could be spread forward in time to ratepayers of the future by delaying recovery of some of  
28 the costs until the drought is over and the utility financially recovers. Importantly, the costs of a drought cannot be  
29 spread backwards in time, to ratepayers of the utility before the drought occurrence, for obvious reasons

30 However, droughts are not “caused” by any ratepayers: neither the ratepayers of the day they occur, nor those before  
31 or afterward. There is no reason why any particular ratepayers across time should be required to bear the burden of  
32 drought, since all ratepayers are valued and respected equally. However, the creation of a “drought relief reserve”, to  
33 which all ratepayers must equally (in a real sense, adjusted for inflation) contribute over time, would be one way of  
34 notionally spreading costs “forward” from any future drought event, and “backward” at least to the point that the  
35 payments into the reserve were begun. This is essentially a form of insurance, with all of the pitfalls normally  
36 applicable to insurance, in terms of accurately estimating all of the probabilities and outcomes involved. Insurance  
37 schemes, for the purposes considered here, amount to a mechanism to fairly distribute the costs of infrequent  
38 negative occurrences over time, fulfilling the principle of cost causality (in the same way that straight line depreciation  
39 attempts to fairly distribute the costs of capital goods over time).

1 Another name for a “drought relief reserve fund” could be “equity”. If all ratepayers were contributing the same  
2 amount (on an inflation- or discount rate-adjusted basis) to equity over time, then all ratepayers would be contributing  
3 equally to the management of infrequent but extremely negative events such as drought.<sup>37</sup>

4 There are a variety of practical problems associated with calculating a “contribution to reserve” that would be  
5 relatively stable and appropriate for all ratepayers over time. However, a primary issue concerns what types of events  
6 should be included in the list of occurrences that should be covered by the notional reserve. Certainly, droughts  
7 would qualify, as would significant operational challenges like major storm damage. However, two of the chief risks  
8 identified by Manitoba Hydro are interest rates and export prices. Arguably, these are not risks that should be subject  
9 to notional insurance or reserves. In normal ratemaking, regulators do not typically attempt to smooth the cost of  
10 interest over time. Instead, ratepayers are required to pay the interest cost at whatever level is extant at the time of  
11 ratemaking. Manitoba Hydro is consistent with this practice, since only the actual costs of debt are passed on to  
12 ratepayers, and Manitoba Hydro does not attempt to hedge or smooth its interest costs against some notional long-  
13 term estimate of what interest rates “should be”.

14 Manitoba Hydro has not proposed that all ratepayers over time pay a certain amount above otherwise required rates  
15 in order to contribute to equity. Instead, they have proposed that ratepayers for a specific period of time pay much  
16 higher rates, in order to create a reserve fund to be used later, in the event of a drought, or other negative event. This  
17 proposed distribution of the burden is called into question by the principle of cost causality.

18

#### 19 *Stability and Predictability*

20 Stability and predictability are important attributes that contribute to customer service, economic efficiency, capital  
21 market acceptance, and the public interest. Customers could make better decisions about their intended use of  
22 electricity if they knew that rates would remain stable, or at least knew that rates would follow a predetermined path  
23 for a reasonable period of time. Governments could better design policies relating to climate change, energy  
24 conservation, fuel switching, and other programs, and capital markets could make better decisions about credit-  
25 worthiness and provide interest rates at efficient levels.

26 According to the *Crown Corporations Governance and Accountability Act*, Manitoba Hydro is only allowed to apply for  
27 rates for up to a three-year period. This limits the absolute length of time over which there can be true predictability of  
28 rates. In fact, Manitoba Hydro has historically returned for rates more often than every three years.

29 As noted in Section 1 of this Report, Manitoba Hydro originally applied for two years of 7.9% rate increases.  
30 However, they emphasized a 10-year rate path in their application. The premise was that they would actually seek  
31 five years of 7.9% increases over time, before rate requests would be reduced to 2% per year. The theory presented  
32 was that these increases would have a 50% probability of resulting in a 75:25 Debt : Equity Ratio by March 31, 2027.  
33 However, when the PUB allowed an interim rate increase of only 3.36% instead of 7.9%, Manitoba Hydro returned  
34 with a revised application highlighting that the 10-year rate path would have to altered in order to maintain the 50%  
35 probability of achieving the Debt : Equity Ratio.

---

<sup>37</sup> An explicit “contribution to reserves” could be included in the revenue requirement formula. The calculation of what this contribution should be over time would depend on the probability of negative events occurring, and their expected severity.

1 In other words, it appears that what is stable from the perspective of Manitoba Hydro is the need to aim for the  
2 targeted Debt : Equity Ratio by a specific date. If, over the next two years, economic and performance variables do  
3 not conform to reference assumptions, would Manitoba Hydro still return with a request for a rate increase of 7.9%, or  
4 would that figure be altered so that there continues to be a 50% probability of achieving the targeted Debt : Equity  
5 Ratio by the specified date?

6 From a ratepayer perspective, it is stable and predictable rates that are of value. From a capital markets perspective,  
7 it is apparent from the comments surveyed in Section 3 of this Report that stable and predictable cash flows are most  
8 helpful in achieving a higher rating. But stability and predictability in the capital structure does not necessarily assist  
9 in providing either of these things, since both rates and cash flows would have to be adjusted dramatically to hew  
10 closely to a specific Debt : Equity Ratio target on an annual basis.<sup>38</sup>

11

## 12 *Public Interest*

13 The public interest principle requires that the regulator of a utility take into account the broader impact of rates and  
14 utility operations on the economy and society in which it is situated.

15 On the question at hand, whether to pursue higher rates to build up equity or not, three public interest issues are  
16 apparent:

- 17 - The broader economic impact associated with higher rates;
- 18 - The risk to the Government of Manitoba credit rates arising from Manitoba Hydro financial outcomes; and
- 19 - Total payments to the Government of Manitoba under the two scenarios.

20 The first issue is addressed by economic experts in this process, and is outside the scope of this Report. Should it be  
21 found that raising rates to the 7.9% level will have a drag on the Manitoba economy, or should it be found that the  
22 competitiveness of certain economic sectors in the province will suffer, then this should be cause to carefully  
23 consider alternative options to the rate request. The second issue was addressed above in Section 3. It is evident  
24 that the capital markets would be very concerned if cash flows at Manitoba Hydro were insufficient to cover all costs,  
25 including interest on debt. Whatever rate path is ultimately chosen, protecting and preserving the credit of the  
26 Province must be a priority.

27 Total payments to the government by Manitoba Hydro consist of property taxes (or their equivalent), water rentals  
28 and assessments, the debt guarantee fee, and capital taxes. As noted in Appendix 4.5 of the application (page 60),  
29 these charges amounted to approximately \$400 million, or 17% of Manitoba Hydro's total revenues in 2016/17. For  
30 the Province of Manitoba, which budgeted approximately \$15.5 billion in total revenues in 2016/17, this amount  
31 represents approximately 2.5% of total annual budget revenues.

32 In considering two possible rate paths of 7.9% or 3.95%, it should be apparent that property taxes and water rental  
33 charges would not change in either case, since these charges are independent of rates. However, the debt  
34 guarantee fee is directly related to outstanding debt during each year, and the capital tax depends on the total of the

---

<sup>38</sup> As noted above in the examination of 7.9% rate path, in 2027/28 there could be a decline in rates of as much as 20%, with concomitant effects on cash flows.

1 debt and equity in the business. By following a 7.9% rate path and reducing debt more quickly than otherwise,  
2 Manitoba Hydro would actually be reducing its payments to the Government of Manitoba.

3 Given the very small portion of budget revenues represented by payments from Manitoba Hydro, and the fact that  
4 water rental charges and property taxes would not change in any case, the difference in total payments to the  
5 Province will be modest and have limited impact. However, it is a somewhat surprising result that under the 7.9% rate  
6 path, ratepayers would be paying more for their power, while the Government of Manitoba would actually be  
7 receiving less revenue from Manitoba Hydro.

8

#### 9 *Access to Capital Markets*

10 Access to the capital markets is a critical requirement for regulated utilities, and must be a priority concern in the  
11 setting of rates.

12 The particular circumstances of Manitoba Hydro's access to capital were addressed in Section 3, above, and need  
13 not be repeated here in detail. The need to ensure that cash flows remain sufficient for Manitoba Hydro purposes is  
14 clear, in order to prevent indirect impacts on the Province's access to and cost of capital. However, Manitoba Hydro  
15 itself has automatic access to capital given its privileged relationship with the Province.

16

17

## 5. Practical Consequences of Financial Targets

### A. Precedent for Future Ratemaking

The PUB, like all regulators, is not bound by precedent with respect to its ratemaking decisions. However, Manitoba Hydro's current application, given its focus on 10-year rate paths and longer term financial targets, presents an opportunity to set the agenda for a period of time into the future, which may be of benefit to all stakeholders.

Manitoba Hydro has not formally requested that the PUB adopt or endorse the financial targets that the Manitoba Hydro Electric Board has adopted. Nor is the PUB bound to do so in its duties as a regulator. The PUB is free to make its own determination about the amount of "any other reserves that are necessary for the maintenance, operation, and replacement of works of the corporation," per s. 25(4)(v) of the *Crown Corporations Governance and Accountability Act*. However, if the PUB chooses to clarify how it will approach the issue of reserves and rate stability in the future, it will simplify the process of ratemaking, both for Manitoba Hydro and for intervenors. With the settlement of these issues, and the adoption of a standardized methodology, the question of reserves and planned addition to reserves could become focused on mathematical and probabilistic calculation, rather than debate over principles and potential impacts.

### B. Signals to the Capital Markets

A critical audience for PUB comments on reserves and rate stability in the future will be the capital markets. As discussed in Section 3, above, capital markets participants are very focused on cash flows at Manitoba Hydro, and the sufficiency of the same to meet all expenses, especially debt interest. They are quite aware of the potential for financial distress in the case of droughts, as well as the challenges potentially faced by Manitoba Hydro in the future with respect to interest rates, export prices, and the ongoing potential for budget or schedule slippage in the Keeyask project.

Explicit endorsement by the PUB of policies around reserves, cash flows, and rate increases will help all market participants understand what to expect. The lack of clarity about whether Manitoba Hydro is "self-supporting" could be at least partly addressed by a statement from the PUB about how it might consider approaching a hypothetical financial distress situation in the future. For example, adoption of a "debt service coverage" ratemaking formula in the style of the Tennessee Valley Authority would signal that rates will be adjusted above all to ensure sufficiency of cash flows (perhaps over some medium-term timeframe, such as a rolling five-year forward period, to aid in the smoothing of rates). Alternatively, use of some fixed or inflation-adjusted level of annual contribution to reserves, built into rates on an ongoing basis, would provide a means for observers to estimate the cash flows and financial resources of Manitoba Hydro under different circumstances.

Of course, endorsement of Manitoba Hydro's target for Debt : Equity of 75% would also be a strong signal, but this would then raise issues about how Manitoba Hydro and the PUB will each separately react to changing financial and operational conditions which will undermine the achievement or maintenance of that target. In many senses, Manitoba Hydro's preferred target and timing goal provides the least certainty to the markets about how rates will be managed in the future. Would rates continue to increase at 7.9% per year, regardless of outcomes, or would rates be adjusted, however dramatically might be necessary, in order to achieve that goal in 2027? Having achieved the goal, would it be strictly enforced thereafter, even if that meant rate decreases and increases from year to year?

1 Unambiguous signals to the capital markets are not without their potential pitfalls, however. If the PUB adopts  
2 policies around reserves and rates, then these will be understood as a new “baseline” by observers and analysts.  
3 Failure to be consistent with those policies in the future would undermine the credibility of the PUB and the financial  
4 soundness of Manitoba Hydro both. Given the very significant role of Manitoba Hydro debt in the finances of the  
5 Province, it is necessary to ensure that at no time there be any circumstance where financial stress at Manitoba  
6 Hydro becomes a “contagion” for the Province.

7

### 8 **C. Manitoba Hydro Debt Management**

9 In its original application, Manitoba Hydro stated that it had changed its internal treasury policies, and was now  
10 targeting an average term to maturity of 12 years for new debt. The meaning and import of this change was  
11 somewhat ambiguous. There appeared to be a suggestion that this policy was an argument in favour of adopting the  
12 7.9% rate path, since it would facilitate the successful continuation of the debt maturity program.

13 In response to PUB Round 1 IR-28(c), Manitoba Hydro stated:

14 *Should underlying forecast assumptions (including rate increases, cost savings, export prices, interest rates, in-*  
15 *service dates) not materialize as planned, Manitoba Hydro will re-evaluate and adjust its debt management*  
16 *strategy and the targeted weighted average term to maturity of new debt issuance as it deems necessary.*

17 This clarifies that the treasury function within Manitoba Hydro is creative and responsive to prevailing conditions, and  
18 is not in fact a driver of decision-making with respect to rates, reserves and other financial targets. In essence,  
19 treasury policies such as target term-to-maturity should be the result of ratemaking decisions, and not a cause.

20

21

## 1 **6. Summary Observations**

2 *Why are financial targets relevant to rate-setting for Manitoba Hydro?*

3 Financial targets are important in rate-setting because they help to define one aspect of the “overall general health”  
4 of Manitoba Hydro, which the PUB has said that it will take into account in its rate-setting. Ultimately, financial targets  
5 cannot be determinative of PUB decisions, and the PUB must balance a variety of principles of regulatory rate-  
6 making as it pursues each unique choice. However, many stakeholders, including especially the capital markets, are  
7 very focused on financial targets, both in historical terms, and with respect to intentions for the future.

8 The PUB may wish to give consideration to clarifying which financial measures it believes are important to rate-  
9 making, and how those measures will be incorporated into decisions, now and in the future. Doing so will provide  
10 clarity to the capital markets, reduce some of the ambiguity that currently clouds credit rating discussions about the  
11 Province of Manitoba, and set the stage for more efficient rate hearings in the future.

12

13 *Should the Debt : Equity Ratio be the primary financial target that is taken into account when setting rates for the*  
14 *future?*

15 Manitoba Hydro’s application gives the Debt : Equity Ratio pride of place among financial measures, and implies that  
16 pursuit of the 75:25 target level by March 31, 2027 should drive rate-setting to an unprecedented degree. The  
17 revision of the proposed 10-year rate path after the PUB’s decision on interim rates speaks volumes about the  
18 subsidiarity of all other considerations in the arguments of Manitoba Hydro.

19 This emphasis on capital structure does not appear to be shared by capital markets observers, who instead are more  
20 focused on measures of cash flow sufficiency to meet debt obligations, in keeping with their primary interest of  
21 protecting their debt investments. While capital structure is an important consideration, it is nevertheless secondary in  
22 credit analysis, and only indirectly sheds light on financial risk. This suggests that if preventing negative impacts on  
23 the credit rating of the Province of Manitoba is a concern, then pursuing a Debt : Equity Ratio is a secondary way of  
24 doing so. Instead, a more direct focus on ensuring cash flow sufficiency through rate-setting would be more likely to  
25 provide that support. However, lest the importance of stability and predictability be forgotten, the need to ensure the  
26 support of the capital markets for Manitoba Hydro should be balanced against the need to avoid wildly swinging  
27 rates. Cash flow sufficiency need not be an annual condition, but can rather be ensured on a rolling forward basis,  
28 which will help to manage both the predictability of rates, and the sufficiency of cash flows.

29 As a pure cost recovery, government-owned utility, it is not clear why “equity” should be a priority per se. From the  
30 perspective of the ratepayers who are the ultimate funders of all of the utility’s operations, “equity” is essentially “dead  
31 money”: it earns no return, but nevertheless has been taken out of the hands of the ratepayers who could otherwise  
32 use it. A review of rate paths through the lens of discounting at the social discount rate helps to stress the importance  
33 of making use of ratepayer funds in the most economical way.

34 If, per the language of the *Manitoba Hydro Act*, “equity” represents the reserves to be set aside “for the stabilization  
35 by the board of rates or prices for power sold by the corporation, the meeting of extraordinary contingencies, and  
36 such other requirements or purposes,” then the term may be more effectively relabeled to better communicate its  
37 intentions to all concerned. In addition, if “equity” is properly to be understood as “reserves”, then it should be clearly  
38 specified what those reserves are for, when they should be called upon (or not), and how exactly all ratepayers

1 should be called upon to contribute equally to the reserves. Fairness as between ratepayers demands no less than  
2 an effort to apportion the costs of reserves over time and across customer classes. Estimating the necessary size of  
3 reserves should be founded upon an understanding of the risks faced by the corporation that should be borne by all  
4 ratepayers across time (as opposed to those risks that should be borne in real time, as they may or may not occur),  
5 and some form of careful calculation about the least size of reserves that will satisfy the need for the general financial  
6 health of the utility. This careful delineation does not appear to have been done; rather, all risks appear to have been  
7 accepted as included in the coverage by equity reserves, and no care taken to ensure that ratepayers over time are  
8 contributing an appropriate amount.

9

10 *Assuming the Debt : Equity Ratio is the primary target, should rates be set so as to achieve that target by March 31,*  
11 *2027, all other things being equal?*

12 Given the observation that Debt : Equity Ratio should not be the primary financial focus for rate-making, this question  
13 is somewhat sidelined. However, if it is determined that Debt : Equity Ratio should be a primary focus, then the  
14 question arises whether the goal of meeting the target in 2027 is appropriate.

15 A glaring issue with this goal, even in a scenario where all reference assumptions were to prove miraculously  
16 accurate, is that in the year following the achievement of the target a very significant rate decrease would be  
17 warranted, otherwise the target would be substantially exceeded in short order. This casts into doubt the value of this  
18 timing goal from the perspective of rate stability and predictability, and also from the perspective of cash flow stability  
19 and predictability.

20 Manitoba Hydro stated in the risk assessment included in the original application that a 7.9% rate path would have a  
21 50% probability of achieving the Debt target by 2027, in the face of a variety of uncertain variables. In the revised  
22 application, post interim rate decision, a revised and even more aggressive rate path was provided, which  
23 presumably continues to have approximately a 50% chance of successfully reaching that target by the same date. No  
24 clarity was provided about which variables would be allowed to undermine the reaching of that goal, and how they  
25 would relate to rate-making. For example, interest rates have already risen somewhat, presumably reducing the  
26 probability of reaching the goal: what should be the rate response, if any? Export prices between now and the next  
27 rate application for 2019 rates may be higher or lower than currently forecast; will that mean that the rates applied for  
28 will still be 7.9%, or will Manitoba Hydro simply accept that the probability of meeting the goal has changed? A fixed  
29 target for a specific date, which does not take into account changing variables and contexts, and is not adjustable  
30 and related to real drivers of rate-making policy, does not appear credible.

31



## Appendix A – Relevant Manitoba Legislation

### *Manitoba Hydro Act*

#### **Purposes and objects of Act**

[2](#) The purposes and objects of this Act are to provide for the continuance of a supply of power adequate for the needs of the province, and to engage in and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power and, in addition, are

- (a) to provide and market products, services and expertise related to the development, generation, transmission, distribution, supply and end-use of power, within and outside the province; and
- (b) to market and supply power to persons outside the province on terms and conditions acceptable to the board.

#### **General powers of board**

[14](#) The board on behalf of the corporation may perform, execute, and carry out, all the duties, powers, and functions imposed or conferred upon it or upon the corporation by this Act; and for that purpose the board may do all and any acts and things that are necessary for or incidental to the performance, execution, or carrying out, of any such duty, power, or function, including the passing of such by-laws and resolutions as the board may deem advisable.

#### **Powers of board**

[15\(1\)](#) The board, on behalf of the corporation, may

- (a) make such by-laws, not contrary to law or this Act, as it deems necessary or advisable for the conduct of the affairs of the corporation, and, without limiting the generality of the foregoing, with respect to the time and place of the calling and holding of all meetings of the board, procedure in all things to be followed at such meetings, and generally with respect to the conduct in all other particulars of the affairs of the corporation, and may repeal, amend, or re-enact them;
- (b) appoint and employ such officers and employees of the corporation as the board deems necessary for the transaction of the business of the corporation and prescribe the duties of any such officers and employees and fix their remuneration;
- (c) obtain the services of such engineers, accountants, and other professional persons as the board deems necessary for the proper and convenient transaction of the business of the corporation, and fix their remuneration;
- (d) make such inquiries and investigations into all or any matters, relating to the development, generation, transmission, distribution, supply, purchase, or use of power, actual or potential, at such times and places and in such manner as seems advisable to the board.

#### **Corporation has powers of a natural person**

[15\(1.1\)](#) In addition to the other powers set forth in this Act and subject to the limitations set forth in this Act, the corporation has the capacity, rights, powers and privileges of a natural person to carry out its purposes and objects and to carry on related business ventures, on such terms and conditions as the board deems proper.

#### **Power to carry out purposes and objects of Act**

[15\(1.2\)](#) Subject to subsection (1.3) and section 15.1, the corporation, or any subsidiary, may

- (a) carry out the purposes and objects of this Act; or
- (b) carry on related business ventures;

on behalf of the corporation, or the subsidiary, or, by way of a partnership, joint venture or any similar arrangement, with any other person, or by way of a company in which the corporation or a subsidiary owns shares or securities.

**Approval of L.G. in C. required where aggregate value exceeds \$5,000,000**

[15\(1.3\)](#) The corporation or any subsidiary shall not, without the approval of the Lieutenant Governor in Council,

- (a) carry out the purposes and objects of the Act; or
- (b) carry on a related business venture;

by way of a partnership, joint venture or any similar arrangement, with any other person, or by way of a company in which the corporation or a subsidiary owns shares or securities, wherein the aggregate value of the investments of the corporation and any subsidiary in, and the obligations of the corporation and any subsidiary to, such partnership, joint venture, company or similar arrangement, with any other person, exceeds \$5,000,000.

**Powers of corporation**

[15\(2\)](#) The corporation may, for temporary purposes, and with or without the consent of the owner, enter, remain upon, take possession of, and use, any property, real or personal, and erect, make, or place thereon any structure, installation, or excavation, and flood and overflow any land, and accumulate and store water thereon.

**Compensation**

[15\(3\)](#) Where the corporation exercises the powers conferred under subsection (2), if it causes damage to the property of, or loss to, any person, it shall pay compensation therefor as in a case to which subsection 24(2) applies.

**Transmission access**

[15\(4\)](#) The corporation may enter into agreements, or issue a tariff prescribing terms and conditions and a rate schedule, under which the corporation may provide access to the transmission facilities of the corporation to any person entitled under section 21 to purchase power for resale in Manitoba or to any person for sale or use outside Manitoba.

**Definitions**

[15.1\(1\)](#) In this section,

**"joint enterprise"** means

- (a) a partnership, joint venture or similar arrangement, or
- (b) a company, other than the corporation or a subsidiary,

in which the corporation or a subsidiary has an interest and which owns or operates a major facility or business; (« coentreprise »)

**"major facility or business"** means

- (a) a major facility in Manitoba for generating, transmitting or distributing power, and
- (b) the business of generating, transmitting or distributing power in Manitoba or of supplying fuel in Manitoba. (« installation ou entreprise importante »)

**No sale by corporation or subsidiary**

[15.1\(2\)](#) Neither the corporation nor a subsidiary shall

- (a) sell, lease or otherwise dispose of, except to the corporation or a subsidiary, all or any part of its interest in a major facility or business;
- (b) sell or otherwise dispose of, except to the corporation or a subsidiary, any of its shares of a subsidiary that owns or operates a major facility or business or has acquired an interest in a joint enterprise pursuant to subsection 15(1.2); or
- (c) sell or otherwise dispose of all or a substantial part of an interest acquired in a joint enterprise pursuant to subsection 15(1.2).

**No issue of shares by subsidiary**

[15.1\(3\)](#) No subsidiary that owns or operates a major facility or business or has acquired an interest in a joint enterprise pursuant to subsection 15(1.2) shall issue, except to the corporation or another subsidiary, any shares of its capital stock.

**No sale of major facility or business acquired under 1997 amendments**

[15.1\(4\)](#) No joint enterprise in which the corporation or a subsidiary has acquired an interest pursuant to subsection 15(1.2) shall sell, lease or otherwise dispose of, except to the corporation or a subsidiary, all or a substantial part of its interest in a major facility or business.

**No guarantee by corporation or subsidiary**

[15.1\(5\)](#) Neither the corporation nor a subsidiary shall guarantee the borrowings or obligations of any person, except that the corporation or a subsidiary may, with the approval of the Lieutenant Governor in Council, guarantee the borrowings or obligations of a subsidiary.

**Retail supply of power**

[15.2](#) No person other than the corporation shall engage in the retail supply of power in Manitoba.

**No privatization without referendum**

[15.3\(1\)](#) The government shall not present to the Legislative Assembly a bill to authorize or effect a privatization of the corporation unless the government first puts the question of the advisability of the privatization to the voters of Manitoba in a referendum, and the privatization is approved by a majority of the votes cast in the referendum.

**Procedures for referendum**

[15.3\(2\)](#) A referendum under this section shall be conducted and managed by the Chief Electoral Officer in the same manner, to the extent possible, as a general election under *The Elections Act*, and the provisions of that Act apply with necessary modifications to such a referendum.

**Question to be put to voters**

[15.3\(3\)](#) The question to be put to voters in a referendum under this section shall be determined by order of the Lieutenant Governor in Council at the commencement of the referendum process.

**Regulations re procedures**

[15.3\(4\)](#) The Lieutenant Governor in Council may make any regulations that the Lieutenant Governor in Council considers necessary respecting the referendum process to give effect to this section, including, without limitation, regulations

- (a) governing the preparation of a voters list;
- (b) governing the expenses that may be incurred and the contributions that may be made, and by whom, in connection with a referendum, including placing limits on such expenses and contributions and establishing registration and reporting requirements for persons or organizations who make such contributions or incur such expenses;
- (c) where greater certainty is required, modifying to the extent necessary the provisions of *The Elections Act* to make them applicable to the requirements of a referendum.

**Costs of referendum**

[15.3\(5\)](#) The costs of conducting a referendum under this section shall be paid from the Consolidated Fund.

### **Capitalization of balance owing to City of Winnipeg**

**15.3.1** If the Legislative Assembly enacts a bill to authorize or effect a privatization of the corporation, the stream of annual payments comprising the unpaid balance of the purchase price for Winnipeg Hydro shall be capitalized and paid in the manner set out in the purchase agreement between The City of Winnipeg and the corporation dated June 26, 2002, or in any other manner agreed to by them and approved by the Lieutenant Governor in Council.

### **Amendment or repeal**

**15.4(1)** Any bill introduced in the Legislative Assembly to amend, repeal, override or suspend the operation of this section or section 15.1 or 15.3 shall be referred at the committee stage to a standing committee of the Legislative Assembly which provides the opportunity for representations by members of the public.

### **Requirements re hearings**

**15.4(2)** The standing committee referred to in subsection (1) shall not meet to review the bill until seven days after the later of

- (a) the day the bill is distributed in the Legislative Assembly; and
- (b) the day the public is given notice of the date, time and place of the meeting.

### **Powers of corporation with approval of L.G. in C.**

**16(1)** With the approval of the Lieutenant Governor in Council the corporation may

- (a) acquire by purchase, lease, licence, or otherwise
  - (i) any power project, power site, and power plant;
  - (ii) that part of the undertaking, property, and assets (including works) of any person, relating to, or used in, the generation, distribution, or supply of power;
- (b) without the consent of the owner or persons interested therein, acquire, take, and expropriate land, including the right of entry to install, maintain and protect works and the right to impose restrictions on the use of any land, notwithstanding that the land which is subject to the restriction is not, or may not be, appurtenant or annexed to any land of the corporation;
- (c) require any person generating, transmitting, distributing, or supplying power, to supply such power to the corporation as the board may from time to time require or designate;
- (d) within such territorial or other limits as the Lieutenant Governor in Council may from time to time prescribe, control and regulate the development, generation, transmission, distribution, and supply, of power in Manitoba, and, for any of those purposes, control and regulate the flow of, and right to use for the generation of power, or any purpose connected therewith, the water in any lake, river, or watercourse, or other body of water in Manitoba, and the taking, diversion, storage, or pondage of any such water;
- (e) acquire by purchase, lease, licence or otherwise
  - (i) any real property outside Manitoba and erect, construct, maintain and operate, upon the real property so acquired, any works, or
  - (ii) interconnection works and maintain and operate the interconnection works so acquired;
- (f) enter into an agreement with Her Majesty in right of Canada or of any province, or with any commission or minister of the Government of Canada, or of any province, or with any state of the United States or any officer or representative thereof, or with any person interested in or affected by any interconnection works, as to the terms and conditions upon which the interconnection works and the works carried out thereon shall be carried on or exercised;
- (g) acquire for use in Manitoba power generated outside Manitoba by the government of any other province, or of any state of the United States, or by any person in that other province or state;
- (h) supply power generated in Manitoba to any other province or any state of the United States, or to any person in that other province or state;
- (i) sell, lease or otherwise dispose of any property of the corporation to a subsidiary or make any other investment in, or incur any obligation to, a subsidiary, where the aggregate value of the property, investments and obligations to the subsidiary exceeds \$5,000,000.;

- (i.1) develop new power generation stations;
- (j) enter into agreements and do all things proper or necessary for the due exercise of the powers mentioned in this section.

**No approval required if less than \$5,000,000**

[16\(2\)](#) Notwithstanding subclause (1)(e)(i), the corporation shall not require the approval of the Lieutenant Governor in Council to acquire real property outside Manitoba if the purchase price of the real property is less than \$5,000,000.

**Subsidiaries**

[16.1\(1\)](#) A subsidiary has the capacity, and subject to this Act and to the applicable laws of the jurisdictions in which the subsidiary carries on business, the rights, powers and privileges of a natural person.

**L. G. in C. may limit rights, powers and obligations of subsidiaries**

[16.1\(2\)](#) In the case of a subsidiary that carries on business outside Manitoba, the Lieutenant Governor in Council may, for the purposes of enabling the subsidiary to comply with the regulatory requirements of the jurisdiction in which it carries on business, specify the rights, powers and obligations of the corporation or a subsidiary set out in this Act which shall not apply to the subsidiary.

**L.G. in C. to approve loans**

[16.1\(3\)](#) A subsidiary shall not raise money by way of loan, on the credit of the subsidiary or otherwise, from any person other than the corporation, without the approval of the Lieutenant Governor in Council.

**L.G. in C. approval required**

[16.1\(4\)](#) A subsidiary shall not carry on an activity for which the corporation is required to obtain the approval of the Lieutenant Governor in Council without obtaining the approval of the Lieutenant Governor in Council.

**Rights of board re subsidiaries**

[16.1\(5\)](#) The board shall exercise all of the rights of a holder of shares or securities with respect to any subsidiary or any company of which it holds shares or securities, including the right to elect directors, as it deems proper.

**Separation of functions**

[16.2](#) Any rules and procedures for the separation of functions which the board has established for the purposes of pursuing opportunities to purchase and sell power within and outside Manitoba may be adopted, by regulation, by the Lieutenant Governor in Council, and upon such adoption such rules and procedures shall have the force of law.

**Adoption of codes and standards**

[16.3\(1\)](#) For the purposes of pursuing opportunities to purchase and sell power within and outside Manitoba, the board may, subject to the approval of the Lieutenant Governor in Council,

- (a) adopt, in whole or in part, any standards, rules, terms, conditions, guidelines or schedules, which are related to the planning, design or operation of generation or transmission facilities within an integrated regional power grid, established by an industry organization, regional transmission group, regulatory body or other association or group or any other person;
- (b) prescribe variations in, additions to or deletions from any standards, rules, terms, conditions, guidelines or schedules adopted under clause (a);

notwithstanding that the adoption of such standards, rules, terms, conditions, guidelines or schedules may constitute the delegation of powers or duties of the corporation to carry out or carry on certain functions to any other person.

### Effect of adoption

[16.3\(2\)](#) The adoption of any standards, rules, terms, conditions, guidelines or schedules under clause (1)(a), in whole or in part and either in existing form or as altered under clause (1)(b), is deemed, on the approval of the board, to be an adoption of

- (a) any subsequent amendment made to the standards, rules, terms, conditions, guidelines or schedules; and
- (b) any new standards, rules, terms, conditions, guidelines or schedules subsequently substituted by an industry organization, regional transmission group, regulatory body or other association or group or any other person, for the standards, rules, terms, conditions, guidelines or schedules, and any new standards, rules, terms, conditions, guidelines or schedules so substituted are deemed to be subject to such alterations, with such modifications as the circumstances require, as may have been made in the adopted standards, rules, terms, conditions, guidelines or schedules under clause (1)(b).

### Authority for temporary borrowing

[30\(1\)](#) With the approval of the Lieutenant Governor in Council, the corporation may, from time to time, borrow or raise money for temporary purposes by way of overdraft, line of credit, or loan, or otherwise upon the credit of the corporation in such amounts, not exceeding in the aggregate the sum of \$500,000,000. of principal outstanding at any one time, upon such terms, for such periods, and upon such other conditions, as the corporation may determine.

### Guarantee

[30\(2\)](#) The government may, on such terms as may be approved by the Lieutenant Governor in Council, guarantee the payment of the principal and interest on any borrowings of the corporation under this section.

### Minister of Finance's approval

[30\(3\)](#) Where the corporation borrows or raises money under this section, otherwise than

- (a) by way of overdraft with a bank; or
- (b) by sale of its short term notes to a bank in lieu of borrowing by overdraft;

it shall do so only with the prior approval of the Minister of Finance, who, at the request of the corporation, may act as its agent in that behalf.

### Temporary advances by government

[31](#) To the extent permitted by any Act of the Legislature the Lieutenant Governor in Council, on the recommendation of the Minister of Finance, may authorize the Minister of Finance to advance moneys to the corporation for its temporary purposes out of the Consolidated Fund; and every such advance shall be repaid by the corporation to the Minister of Finance at such times, and on such terms, as the Lieutenant Governor in Council may direct, together with interest thereon at such rate per annum as may be approved by the Lieutenant Governor in Council at the time of the making of the advance and from time to time.

### Loans by government

[32\(1\)](#) To the extent permitted by any Act of the Legislature the Lieutenant Governor in Council may authorize the raising by way of loan, in the manner provided in *The Financial Administration Act* and *The Loans Act*, of such sums as the Lieutenant Governor in Council may deem requisite for any of the purposes of the corporation under this Act; and any such sums may be advanced to, and paid over by the Minister of Finance to, the corporation, and shall be repaid by it to the Minister of Finance at such times and on such terms as the Lieutenant Governor in Council may direct, together with interest thereon as provided in subsection (2).

### Fixing of rate of interest

[32\(2\)](#) Where an advance is made to the corporation under subsection (1), the Lieutenant Governor in Council shall, by order in council at the time of making the advance, fix the rate of interest that shall be paid by the corporation on the sums so advanced, or on the balance thereof remaining from time to time outstanding and not repaid, during such period as is stated in the order; and after the expiry of that period the Minister of Finance shall, by an order in writing, fix, and alter from time to time, as may be required, the rate of interest that shall be paid by the corporation on the sums so advanced, or on the balance thereof as aforesaid, during any one or more subsequent periods that may be stated in any such order.

**Power of corporation to borrow and to issue securities**

[33\(1\)](#) Subject to the approval of the Lieutenant Governor in Council, and to subsection (2), the corporation may

- (a) raise money by way of loan on the credit of the corporation;
- (b) limit or increase the amount to be raised;
- (c) issue notes, bonds, debentures, or other securities of the corporation;

for the purposes of the corporation or for any related business venture; and, through the Minister of Finance, who shall be its agent in that behalf, it may

- (d) sell or otherwise dispose of the notes, bonds, debentures, or securities, for such sums, and at such prices, as are deemed expedient;
- (e) raise money by way of loan on any such securities;
- (f) pledge or hypothecate any such securities as collateral security; and
- (g) do any of those things.

**Limitation on borrowing powers**

[33\(2\)](#) The powers conferred on the corporation under subsection (1) may be exercised only

- (a) for the repayment of any expenditure made, or that may be made, by the government for the purposes provided for in this Act or for any related business venture, or for the repayment, refunding, or renewal, of the whole or part of any loan or advance made by the government to the corporation or of notes, bonds, debentures, or other securities issued by the corporation; or
- (b) in cases to which clause (a) does not apply, only to the extent permitted by this Act or any other Act of the Legislature.

**Reissue of pledged securities**

[33\(3\)](#) Where securities have been pledged or hypothecated by the corporation as security for a loan and the loan has been paid off, the securities are not thereby extinguished, but are still alive, and may be reissued and sold or pledged as if the former pledging had not taken place.

**Form of securities**

[33\(4\)](#) The notes, bonds, debentures, and other securities the issue of which is authorized by subsection (1) shall be in such form, and shall bear such rates of interest, and shall be payable as to principal, interest, and premium, if any, at such times and places, in the currencies of such countries, in such amounts, and in such manner in all respects, as the Lieutenant Governor in Council may determine.

**Form of securities**

[33\(5\)](#) The notes, bonds, debentures, and other securities authorized by subsection (1) shall bear the seal of the corporation which may be impressed thereon or may be engraved, lithographed, printed, or otherwise mechanically reproduced thereon, and, together with any coupons attached thereto, shall bear the manual, engraved, lithographed, printed, or otherwise mechanically reproduced signatures of the chairman and of any one officer of the corporation appointed by the board for that purpose; and any such mechanically reproduced seal and signatures are, for all purposes, valid and binding upon the corporation if the note, bond, debenture, or other security bearing it, or to which the coupon bearing it is attached, is countersigned by an officer appointed by the corporation for that purpose, notwithstanding that the person whose signature is so reproduced may not have held office at the date of the notes, bonds, debentures, or other securities or at the date of the delivery thereof and notwithstanding that the person who holds any such office at the time when any such signature is affixed is not the person who holds that office at the date of the notes, bonds, debentures, or other securities or at the date of the delivery thereof.

**Proof that issue of securities is necessary**

[33\(6\)](#) A recital or declaration, in the resolution or minutes of the board authorizing the issue or sale of notes, bonds, debentures, or other securities, to the effect that the amount of notes, bonds, debentures, or other securities so authorized is necessary to realize the net sum authorized or required to be raised by way of loan, is conclusive evidence of that fact.

**Power of government to guarantee**

[34\(1\)](#) The government may, on such terms as may be approved by the Lieutenant Governor in Council, guarantee the payment of the principal, interest, and premium, if any, of any notes, bonds, debentures, and other securities issued by the corporation; and the form and manner of any such guarantee shall be such as the Lieutenant Governor in Council may approve.

**Signing of guarantees**

[34\(2\)](#) The guarantee shall be signed by the Minister of Finance, or such other officer or officers as may be designated by the Lieutenant Governor in Council; and, upon being signed, the government is liable for the payment of the principal, interest, and premium, if any, of the notes, bonds, debentures, and securities guaranteed, according to the tenor thereof.

**Discharge of liability under guarantee**

[34\(3\)](#) In a case to which subsections (1) and (2) apply, the Lieutenant Governor in Council may discharge the liability resulting from the guarantee out of the Consolidated Fund, or out of the proceeds of securities of the government issued and sold for the purpose; and, in the hands of a holder of any such notes, bonds, debentures, or securities of the corporation, a guarantee so signed is conclusive evidence that compliance has been made with this section.

**Signature of Minister of Finance, etc.**

[34\(4\)](#) The signature of the Minister of Finance or of any such officer or officers for which provision is made in subsection (2) may be engraved, lithographed, printed, or otherwise mechanically reproduced, and the mechanically reproduced signature of any such person shall be conclusively deemed, for all purposes, the signature of that person and is binding upon the Government of Manitoba notwithstanding that the person whose signature is so reproduced may not have held office at the date of the notes, bonds, debentures, or other securities or at the date of the delivery thereof and notwithstanding that the person who holds any such office at the time when any such signature is affixed is not the person who holds that office at the date of the notes, bonds, debentures, or other securities or at the date of the delivery thereof.

**Authority to raise loans in other currencies or in units of monetary value**

[35](#) Where this Act, or any other Act, authorizes the corporation to borrow or raise by way of loan a specific or maximum number of dollars by the issue and sale of notes, bonds, debentures, or other securities, it authorizes the borrowing, or raising by way of loan in whole or in part, of the same number of dollars of the currency of the United States; and if the amount of the loan is raised, in whole or in part, by the issue and sale of notes, bonds, debentures, or other securities payable in the currency of any country other than Canada or the United States or in units of monetary value, the Act authorizes the raising of an equivalent amount in that other currency or in units of monetary value calculated in accordance with the nominal rate of exchange between the Canadian dollar or the unit of monetary value, as the case may be, and the currency concerned on the business day next preceding the day on which the corporation authorizes the issue of the notes, bonds, debentures, or other securities, as that nominal rate is determined by any bank in Canada.

**Price of power requisitioned**

[38\(1\)](#) The price to be paid by the corporation for power supplied to it on its requisition pursuant to clause 16(c) shall be computed by the board at the amount of the actual cost of producing it, including a reasonable allowance for employed capital; and the prices so paid shall not necessarily be the same as between different suppliers.

**Review by P. U. Board**

[38\(2\)](#) Any person required by the board to supply power to the corporation may apply to The Public Utilities Board to review the price computed under subsection (1) for power supplied to the corporation.



**Price of power sold by corporation**

[39\(1\)](#) The prices payable for power supplied by the corporation shall be such as to return to it in full the cost to the corporation, of supplying the power, including

- (a) the necessary operating expenses of the corporation, including the cost of generating, purchasing, distributing, and supplying power and of operating, maintaining, repairing, and insuring the property and works of the corporation, and its costs of administration;
- (b) all interest and debt service charges payable by the corporation upon, or in respect of, money advanced to or borrowed by, and all obligations assumed by, or the responsibility for the performance or implementation of which is an obligation of the corporation and used in or for the construction, purchase, acquisition, or operation, of the property and works of the corporation, including its working capital, less however the amount of any interest that it may collect on moneys owing to it;
- (c) the sum that, in the opinion of the board, should be provided in each year for the reserves or funds to be established and maintained pursuant to subsection 40(1).

**Fixing of price by corporation**

[39\(2\)](#) Subject to Part 4 of *The Crown Corporations Governance and Accountability Act* and to subsection (2.1), the corporation may fix the prices to be charged for power supplied by the corporation.

**Equalization of rates**

[39\(2.1\)](#) The rates charged for power supplied to a class of grid customers within the province shall be the same throughout the province.

**Interpretation**

[39\(2.2\)](#) For the purpose of subsection (2.1),

- (a) grid customers are those who obtain power from the corporation's main interconnected system for transmitting and distributing power in Manitoba; and
- (b) customers shall not be classified based solely on the region of the province in which they are located or on the population density of the area in which they are located.

[39\(3\) to \(7\)](#) [Repealed] S.M. 1988-89, c. 23, s. 34.

**Confining hearing**

[39\(8\)](#) In any public hearing held under this section, The Public Utilities Board may define the status and rights of any intervener to the application and it may confine the public hearing by refusing to admit evidence or permit a submission that does not relate to matters that come within the scope of the public hearing as determined and prescribed by The Public Utilities Board.

[39\(9\)](#) [Repealed] S.M. 1988-89, c. 23, s. 34.

**Material supplied by corporation**

[39\(10\)](#) Where an application is made to The Public Utilities Board under this Act, the corporation, upon request of The Public Utilities Board, shall provide The Public Utilities Board with

- (a) a statement showing the prices fixed or proposed to be fixed and the prices which were or are in effect prior to the new prices being fixed;
- (b) a statement of the reasons for any changes in the prices fixed or proposed to be fixed including a statement of the facts supporting those reasons;
- (c) a statement of the manner in which and a time at which the changes in the prices were or are proposed to be implemented; and
- (d) such further information incidental thereto as The Public Utilities Board may reasonably require.

**Recommendations by P. U. Board**

[39\(11\)](#) After hearing evidence and submissions in respect of any application made to it under this Act, The Public Utilities Board shall make a report to the minister which shall include its recommendations as to the prices that should be charged for power supplied by the corporation or paid for power requisitioned by the corporation, as the case may be, and the reasons for its recommendations.

**Action by L.G. in C.**

[39\(12\)](#) Upon receiving the report of The Public Utilities Board under subsection (11), the minister shall refer the report for consideration to the Lieutenant Governor in Council, who shall thereafter direct the corporation as to the prices to be charged for power supplied by the corporation or paid for power requisitioned by the corporation, as the case may be, together with such other orders or directions incidental thereto as he deems appropriate, and the corporation shall comply with the orders and directions given by the Lieutenant Governor in Council for such period as may be prescribed by the Lieutenant Governor in Council.

**Applications made under subsec. 38(2) or 50(4)**

[39\(13\)](#) Where an application is made to The Public Utilities Board under subsection 38(2) to review a price computed under subsection 38(1) or an application is made to The Public Utilities Board under subsection 50(4) to review an assessment or apportionment made under subsection 50(3), subsections (8), (10), (11) and (12) apply with such modifications as the circumstances require to the application.

**Establishment of reserves**

[40\(1\)](#) The board shall establish and maintain, and may adjust as required, such reserves or funds of the corporation as are sufficient, in the opinion of the board, to provide

- (a) for the amortization of the cost to the corporation of the property and works, (whether as a whole or in its component parts), of the corporation during the period, or remaining period, of the useful life thereof;
- (b) insurance, for which provision is not otherwise made, against loss or damage to any property of the corporation, or to the persons or property of others, caused by or arising out of the works or operations of the corporation;
- (c) for the stabilization by the board of rates or prices for power sold by the corporation, the meeting of extraordinary contingencies, and such other requirements or purposes as in the opinion of the board are proper.

**Use of reserves**

[40\(2\)](#) The reserves created pursuant to subsection (1) may be used or employed by the board

- (a) towards the reservation and setting aside of the sinking fund established under section 41;
- (b) towards the renewal, reconstruction, or replacement, or depreciated, damaged, or obsolescent property and works;
- (c) towards restoration of any property lost or damaged, or the payment of any claims, in respect of which a reserve as insurance has been established;
- (d) in such manner towards the stabilization of rates or prices for power, the meeting of extraordinary contingencies, and for such other requirements or purposes, as the board in its discretion deems proper; and
- (e) subject to the approval of the Lieutenant Governor in Council, towards the cost of construction of new works and extensions, improvements, or additions, to any property and works of the corporation.

**SINKING FUND****Establishment of sinking fund**

[41\(1\)](#) The board shall reserve and set aside, out of the reserves or funds of the corporation established and maintained under section 40 and out of such other revenues and funds of the corporation as may be available for such purposes,

- (a) such annual or other periodic amounts as may be required to be reserved and set aside as a sinking fund under any agreement or undertaking entered into, or assumed, by the corporation or the responsibility for the performance or implementation of which is an obligation of the corporation, relative to the repayment of moneys borrowed by the corporation and
- (b) such additional annual or other periodic amounts as the Lieutenant Governor in Council may from time to time direct to be reserved and set aside as a sinking fund for the repayment of any other moneys borrowed by, or advanced to, the corporation and applied to the cost of acquisition or construction of property and works of the corporation, or indebtedness assumed by the corporation or the liability for the repayment of which is an obligation of the corporation, in respect of the cost of any property or works of the corporation, or otherwise.

#### **Minimum annual amount for sinking fund**

[41\(2\)](#) Subject to subsection (7), the aggregate of the amounts so reserved and set aside as a sinking fund in each fiscal year under subsection (1) shall not be less than

- (a) 1% of the advances, borrowings, and assumptions of indebtedness or indebtedness for which the corporation is liable, mentioned in subsection (1) that are outstanding as at March 31 of the fiscal year next preceding the fiscal year in which the sinking fund payment is made; and
- (b) an amount in each fiscal year equal to interest at the rate of 4% per annum on the total sinking fund balances as at March 31 in the next preceding fiscal year.

#### **Payment to Minister of Finance**

[41\(3\)](#) The moneys reserved and set aside in each fiscal year for sinking fund purposes under subsections (1) and (2) shall be paid to the Minister of Finance as trustee for the corporation before the end of that fiscal year.

#### **Sinking fund trust account**

[41\(4\)](#) The Minister of Finance shall continue to maintain appropriate sinking fund trust accounts, in which shall be included

- (a) the moneys and investments made from the moneys reserved and set aside by the corporation, and from interest earnings thereon, held by the Minister of Finance at the time this Act comes into force; and
- (b) the moneys paid to the Minister of Finance under subsection (3).

#### **Investment by Minister of Finance**

[41\(5\)](#) The Minister of Finance shall invest and keep invested the moneys and investments so held by the Minister of Finance, in securities authorized by *The Financial Administration Act* for the investment of funds, and shall apply them towards the repayment of advances made to, and moneys borrowed or assumed by, the corporation or liability for the repayment of which is an obligation of the corporation and to which reference is made in subsection (1), as they fall due; and the Minister of Finance shall pay to the corporation all interest earned from the investment of the moneys so reserved and set aside and paid to and held by the Minister of Finance.

#### **Repayments to the government**

[41\(6\)](#) The corporation in addition to the payments provided for under subsections (1) and (2), may pay to the Minister of Finance such money as it may have available for application on advances made by the government to the corporation or assumed by the corporation or liability for the repayment of which is an obligation of the corporation.

#### **Authorization of omission or deferment of commencement of sinking fund payments**

[41\(7\)](#) Subject to subsection (1) and notwithstanding subsection (2), the Lieutenant Governor in Council may direct that

- (a) in respect of any moneys advanced to or borrowed by the corporation pursuant to sections 31 or 32, no amounts need be reserved or set aside as a sinking fund; and

- (b) in respect of any moneys advanced to, or borrowed or assumed by, the corporation, or liability for the repayment of which is an obligation of the corporation, and that are applied to the cost of newly constructed works of the corporation, the payments to which reference is made in clauses (2)(a) and (b), shall begin with such fiscal year of the corporation as, in each case, the Lieutenant Governor in Council may direct.

#### **Limitation respecting fiscal year that is to be fixed**

[41\(8\)](#) The fiscal year to be directed by the Lieutenant Governor in Council under clause (7)(b) shall not be later than five years after the making of the respective advances to or borrowings by the corporation or, in the case of moneys assumed by the corporation or liability for the repayment of which is an obligation of the corporation, shall not be later than five years after the making of the respective advances or borrowings liability for repayment of which is an obligation of the corporation.

#### **"Works" defined for purposes of subsection (7)**

[41\(9\)](#) For the purposes of subsection (7), the expression "**works**", in addition to the meaning given it in section 1, includes preliminary reports, surveys, investigations, engineering, accounting, or organization work or service, or any other work or service in connection with, or incidental to, any proposed development or construction.

### APPLICATION OF REVENUES

#### **Application of revenues of the corporation**

[42\(1\)](#) The corporation shall apply its revenues toward payment of the operating expenses, interest, and other charges, to which reference is made in clauses 39(1)(a) and (b), and the establishment and maintenance of the reserves and funds established under section 40, and to the reservation and setting aside of the sinking fund established under section 41, and towards all other obligations of the corporation; and the corporation may pay the Minister of Finance, for investment for the corporation, such additional moneys as are available for that purpose and as are not immediately required for the purposes and objects of the corporation.

#### **Funds to be held in trust**

[42\(2\)](#) Additional moneys paid to the Minister of Finance for investment under subsection (1) shall form part of the Consolidated Fund; and interest earnings thereon shall be credited to the account of the corporation in the Consolidated Fund or shall be paid over to the corporation by the Minister of Finance.

#### **Right of corporation to use of funds and securities**

[42\(3\)](#) The moneys referred to in subsection (2), and any investment therefrom held for the corporation, may be used as required by the board for the purposes of the corporation.

### TAXATION, CHARGES AND DISTRIBUTIONS

[43\(1\)](#) [Repealed] S.M. 1989-90, c. 24, s. 85.

#### **Grant in lieu of cost of municipal and school services**

[43\(2\)](#) The corporation, as an operating expense, shall make annually to any municipality in which land or personal property of the corporation are situated, or in which the corporation carries on business, such grant towards the cost of municipal and school services as the Lieutenant Governor in Council may approve.

#### **Grants by subsidiaries**

[43\(2.1\)](#) A subsidiary, as an operating expense, shall make annually to any municipality in which land or personal property of the subsidiary is situated, or in which the subsidiary carries on business, such grant towards the cost of municipal and school services as the Lieutenant Governor in Council may approve.

### Exemption from municipal taxation

[43\(2.2\)](#) For greater certainty, and without limiting any exemption from municipal taxation under *The Municipal Assessment Act*, the corporation and its subsidiaries are exempt from all taxes levied by a municipality on the following property:

- (a) conduits, poles, pipes, wires, transmission lines, plant, equipment and any similar property owned by the corporation or any of its subsidiaries or occupied or used by any of them in the generation, transformation, transmission or distribution of power; and
- (b) any land on or under which such property is situated.

### Limitation

[43\(2.3\)](#) Subsection (2.2) does not exempt the corporation or any of its subsidiaries from local improvement taxes levied against land used for an electric substation or an office building.

### Funds of government and corporation not to be mixed

[43\(3\)](#) Except as specifically provided in this Act, the funds of the corporation shall not be employed for the purposes of the government or any agency of the government as that expression is defined in *The Civil Service Act*, other than the corporation, and the funds of the government shall not be employed for the purposes of the corporation except as advances to the corporation by the government by way of loan or as a result of a guarantee by the government of indebtedness of, or assumed by, the corporation or liability for the repayment of which is an obligation of the corporation.

### Application of subsection (3)

[43\(4\)](#) Subsection (3) does not

- (a) exempt the corporation from paying any tax that may be payable to the government under an Act of the Legislature; or
- (b) apply to moneys that may be payable by the corporation
  - (i) under *The Water Power Act* in respect of water power leases, licences, or permits; or
  - (ii) as rentals or fees in respect of leases, licences, or permits, of transmission line rights-of-way; or
  - (iii) in respect of moneys advanced by the government to the corporation, or assumed by it or liability for the repayment of which is an obligation of the corporation, or guaranteed by the government, and interest thereon and any charge made in respect thereof; or
  - (iv) as a payment under subsection (5); or
- (c) apply to moneys payable by the government or any agency of the government for power supplied to the government or the agency, as the case may be, by the corporation.

### Distributions from retained earnings

[43\(5\)](#) The corporation shall pay a portion of its retained earnings to the government for its general purposes as follows:

- (a) as soon as practicable after this subsection comes into force, an amount equal to the lesser of
  - (i) \$150,000,000., and
  - (ii) 75% of the corporation's net income for the fiscal year that ended on March 31, 2002;
- (b) in accordance with subsection (6), 75% of the corporation's net income for the year ending on March 31, 2003, or any lesser amount determined by the Lieutenant Governor in Council; and
- (c) in accordance with subsection (6), 75% of the corporation's net income for the year ending on March 31, 2004, or any lesser amount determined by the Lieutenant Governor in Council.

But the total of the amounts paid under this subsection shall not exceed \$288,000,000.

**Timing of distributions**

[43\(6\)](#) Amounts payable under clauses (5)(b) and (c) shall be estimated and remitted to the government before the end of the fiscal year to which they relate. As soon as practicable after the amount payable for the year is determined, the government shall refund any excess to the corporation and the corporation shall remit any shortfall to the government.

**Order for interconnection of electrical systems**

[50\(2\)](#) If authorized by the Lieutenant Governor in Council, the board may order any person engaged in Manitoba in the generation, transmission or distribution of power to make an interconnection of two or more electrical systems, or parts thereof, on such terms and conditions, including the provision of transmission access to the corporation or to any other person, and with such apportionment of costs, as the board may deem proper.

**Enforcement of order**

[50\(3\)](#) In default of such an order being carried out in the manner, and within the period therein specified, and without limiting any other remedy of the corporation, the corporation may carry out the order, or cause it to be carried out; and for that purpose the corporation may enter upon the property of any such person and do whatever is necessary to effect the interconnection ordered, and may assess to, and collect from, that person the cost of so doing or such portion thereof as the board may deem fit.

**Review by P. U. Board**

[50\(4\)](#) Any person against whom an assessment is made under subsection (3) may apply to The Public Utilities Board to review the assessment or the apportionment thereof.

*Crown Corporations Governance and Accountability Act***PUBLIC UTILITIES BOARD REVIEW OF RATES****Hydro and MPIC rates review**

[25\(1\)](#) Despite any other Act or law, rates for services provided by Manitoba Hydro and the Manitoba Public Insurance Corporation shall be reviewed by The Public Utilities Board under *The Public Utilities Board Act* and no change in rates for services shall be made and no new rates for services shall be introduced without the approval of The Public Utilities Board.

**Definition: "rates for services"**

[25\(2\)](#) For the purposes of this Part, "rates for services" means

- (a) in the case of Manitoba Hydro, prices charged by that corporation with respect to the provision of power as defined in *The Manitoba Hydro Act*; and
- (b) in the case of The Manitoba Public Insurance Corporation, rate bases and premiums charged with respect to compulsory driver and vehicle insurance provided by that corporation.

**Application of Public Utilities Board Act**

[25\(3\)](#) *The Public Utilities Board Act* applies with any necessary changes to a review pursuant to this Part of rates for services.

**Factors to be considered, hearings**

[25\(4\)](#) In reaching a decision pursuant to this Part, The Public Utilities Board may

- (a) take into consideration
  - (i) the amount required to provide sufficient funds to cover operating, maintenance and administration expenses of the corporation,
  - (ii) interest and expenses on debt incurred for the purposes of the corporation by the government,
  - (iii) interest on debt incurred by the corporation,
  - (iv) reserves for replacement, renewal and obsolescence of works of the corporation,
  - (v) any other reserves that are necessary for the maintenance, operation, and replacement of works of the corporation,
  - (vi) liabilities of the corporation for pension benefits and other employee benefit programs,
  - (vii) any other payments that are required to be made out of the revenue of the corporation,
  - (viii) any compelling policy considerations that the board considers relevant to the matter, and
  - (ix) any other factors that the Board considers relevant to the matter; and
- (b) hear submissions from any persons or groups or classes of persons or groups who, in the opinion of the Board, have an interest in the matter.

**MPIC**

[25\(5\)](#) In the case of a review pursuant to this Part of rates for services of the Manitoba Public Insurance Corporation, The Public Utilities Board may take into consideration, in addition to factors described in subsection (4), all elements of insurance coverage affecting insurance rates.

[25\(6\)](#) [Not yet proclaimed]

**Multi-year approvals**

[26\(1\)](#) A corporation may submit for the approval of The Public Utilities Board pursuant to this Part proposals regarding rates for services relating to a period of not more than three years and the Board shall identify in its order the change approved, if any, with respect to each year.

**Increases not cumulative**

[26\(2\)](#) No corporation shall increase rates for services by an amount in any year that exceeds the amount approved for that year by The Public Utilities Board or introduce new rates for services in any year other than new rates for services approved for introduction in that year by The Public Utilities Board.

**Changed circumstances**

[26\(3\)](#) Where The Public Utilities Board is satisfied that the circumstances of a corporation have changed substantially, The Public Utilities Board may, of its own motion or on the application of the corporation or an interested person, review an order made pursuant to this section and modify the order in any manner that The Public Utilities Board considers reasonable and justified in the circumstances.

**Compensation or refunds**

[27](#) When a new rate for services or an increased rate is allowed pursuant to an interim order and a final order does not allow any changes or allows changes other than those permitted in the interim order, The Public Utilities Board may make any order to compensate for or to refund any excess amounts collected by the corporation that it considers necessary and appropriate in the circumstances.



*Public Utilities Board Act*

**Application to Manitoba Hydro**

[2\(5\)](#) Subject to Part 4 of *The Crown Corporations Governance and Accountability Act* and except for the purposes of conducting a public hearing in respect of an application made to the board under subsection 38(2) or 50(4) of *The Manitoba Hydro Act*, this Act, other than subsection 83(4) and the regulations under that subsection, does not apply to Manitoba Hydro and the board has no jurisdiction or authority over Manitoba Hydro.

**Regulations respecting construction standards**

[83\(4\)](#) The board may make and enforce regulations, not inconsistent with this Act, prescribing standards for the construction and erection of telephone, telegraph, and power transmission lines; and every such regulation made under and in accordance with the authority granted by this section, has the force of law; and any owner of a public utility who has constructed or erected such lines in accordance with such regulations, is relieved from all liability for damage arising out of the construction or erection of the lines.

## Appendix B – Manitoba PUB Regulatory Principles

The following information was retrieved from the website of the Manitoba PUB, at <http://www.pubmanitoba.ca/v1/about-pub/regulatoryprinciples.html>.

### **Regulatory Principles**

When considering a rate application, the Board must weigh all the available evidence. As such, the PUB operates on the basis of sound, established regulatory principles in order to come to decisions. There is no single authority that sets regulatory principles, and these principles may conflict or overlap, but it is the goal of the PUB to effectively balance the following principles and consistently take them into consideration when setting utility rates.

#### **Cost of service standard**

This principle is at the heart of rate regulation. Under this principle, a utility is permitted to set rates that allow it to recover its costs for regulated operations, including a fair rate of return on its investment devoted to those regulated operations—no more and no less. In most cases, rates are set in anticipation of future costs. If the regulated entity over-recovers those costs, it keeps the excess. If it under-recovers, it bears the cost of the deficiency of its projections.

#### **Intergenerational Equity**

Under this principle, customers in a given period should only pay the costs that are necessary to provide them with services in that period. They should not have to pay any costs incurred to provide services to customers in any other period. This principle is consistent with setting rates that are just and reasonable. For example, a regulated entity is usually not allowed to earn a return on projects under construction because any costs incurred are incurred in order to provide services to future customers. Instead, the costs are capitalized and recovered through depreciation over the period that the assets are used to provide the service.

#### **Matching Principle**

This principle requires that a regulated entity's costs be matched to the period that benefits from the costs being incurred, and should be recovered from customers in that period. In other words, the customers in each period should pay for the costs of providing them with service in that period. The matching principle follows from the cost of service standard and the principle of intergenerational equity. Consistent with the cost of service standard, all of a regulated entity's costs should be recovered from customers. Consistent with the principle of inter-generational equity, only customers in the period that benefit from the cost being incurred should pay for the cost.

#### **Rate stability and predictability**

This principle requires rates to remain stable and predictable, at least to the extent practical. Therefore, the principle may justify smoothing out increases to avoid any sharp rate climbs.

The principle of rate stability and predictability may require costs to be collected from customers in periods other than those for which the costs were incurred. Therefore, the principle is inconsistent with the principle of inter-generational equity. Despite that, it is justified because it recognizes the problems customers can face in adjusting to significant short-term rate fluctuations.

#### **Used or required to be used**

Under this principle, customers should only pay for the cost of those assets that are either used or required to be used to provide them with the service. An application of this principle is in the case of a diversified company with both regulated and non-regulated operations. The customers of the regulated operations should not be required to pay for assets used to supply non-regulated services.

**Prudence standard**

Under this principle, customers should be charged only for prudently incurred costs. This recognizes the fact that regulated entities have a responsibility to manage themselves in a prudent manner. This principle is central to the PUB hearing process and the wealth of evidence collected and examined by the Board in its proceedings.

**Why we do it**

Due to the capital intensive nature of the business, and the inherent difficulty of competition in such a closed market, utilities naturally tend toward monopoly formation, meaning the complete absence of market competition. The PUB regulates public utilities precisely because they constitute a so-called natural monopoly in the marketplace. The industry demonstrates so-called “economies of scale,” meaning that the costs for the utility in distribution and production decrease as demand increases. In short, the more customers, the cheaper it becomes to serve them. This means that one large firm can provide utility service at a lower cost than two or more firms.

In the absence of a competitive market, prices are not set based on supply and demand pressures but rather on a self-determined reasonable rate of return for the utility, coupled with some outside evidence of what consumers will reasonably pay. Without market competition there is a risk that consumers will pay exorbitant prices for utility service.

In Manitoba, these natural utility monopolies are largely controlled by the government, or the Crown, as state-owned enterprises or Crown Corporations Manitoba Hydro (which includes natural gas subsidiary Centra Gas) and Manitoba Public Insurance. These state-owned enterprises seek only to break-even in their operations.

But while state-owned monopolies do not seek to generate a profit, they may charge unfair or unjust rates in the absence of oversight. Regulation and rate setting is intended to ensure that rates are prudent, just and reasonable, that utility service is reliable and safe, and that a balance is achieved between customer needs and the revenue requirements of the utility and its creditors.

## Appendix C – The Bonbright Criteria

This version is drawn from James C. Bonbright, *Principles of Public Utility Rates*, Second Edition, 1988.

1. Effectiveness in yielding total revenue requirements under the fair-return standard without any socially undesirable expansion of the rate base or socially undesirable level of product quality and safety
2. Revenue stability and predictability, with a minimum of unexpected changes that are seriously adverse to utility companies
3. Stability and predictability of the rates themselves, with a minimum of unexpected changes that are seriously adverse to utility customers and that are intended to provide historical continuity
4. Static efficiency, i.e., discouraging wasteful use of electricity in the aggregate as well as by time of use
5. Reflect all present and future private and social costs in the provision of electricity (i.e., the internalization of all externalities)
6. Fairness in the allocation of costs among customers so that equals are treated equally
7. Avoidance of undue discrimination in rate relationships so as to be, if possible, compensatory (free of subsidies)
8. Dynamic efficiency in promoting innovation and responding to changing demand-supply patterns
9. Simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application
10. Freedom from controversies as to proper interpretation

## Appendix D – Manitoba Hydro Peer Group

In the following pages, additional information has been gathered for:

### Canada

BC Hydro  
Enmax  
Epcor  
Hydro Quebec  
Nalcor  
New Brunswick Power  
Ontario Power Generation  
SaskPower  
Toronto Hydro

### United States

Basic Electric Power Cooperative  
Bonneville Power Administration  
Long Island Power Authority  
Los Angeles Department of Water and Power  
New York Power Authority  
Santee Cooper  
Tennessee Valley Authority

## BC Hydro

Jurisdiction	British Columbia
Ownership	Government of British Columbia
Org. Type	<ul style="list-style-type: none"> <li>- Vertically-integrated Crown Corporation</li> <li>- The board is appointed by the Lieutenant-Governor in Council</li> <li>- Pays dividends</li> </ul>
Markets	Electricity generation, transmission and distribution
Mandate (in addition to primary purpose of providing listed services to customers)	From the annual <i>Mandate Letter</i> : "to provide reliable, affordable, clean electricity throughout British Columbia safely"
Regulation	- British Columbia Utilities Commission
Customers	Total customer accounts: 1,988,167 <ul style="list-style-type: none"> <li>- Residential: 1,776,502</li> <li>- Light industrial and commercial: 207,802</li> <li>- Large industrial: 191</li> <li>- Other: 3,467</li> <li>- Trade: 204</li> </ul>
Lines	<ul style="list-style-type: none"> <li>- Distribution lines: 59,078 km</li> <li>- Transmission lines: 20,278 km</li> </ul>
Sources of Production	- Hydroelectric and Thermal
Energy produced	Total: 79,319 GWh <ul style="list-style-type: none"> <li>- Hydroelectric: 48,736 GWh</li> <li>- Thermal: 74 GWh</li> </ul>
Imported Energy	
Exported Energy	- \$675M in "Trade" representing 11.5% - arbitrage

In CAD millions	BC Hydro						
	2010	2011*	2012	2013	2014	2015	2016
Revenue	\$4,016	\$4,730	\$4,898	\$5,392	\$5,748	\$5,657	\$5,874
Net income	\$589	\$588	\$509	\$549	\$581	\$655	\$684
Total assets	\$19,973	\$21,900	\$23,782	\$25,711	\$27,753	\$30,034	\$31,888
Property, plant and equipment	\$15,019	\$15,991	\$17,226	\$18,525	\$19,933	\$21,385	\$22,998
Depreciation & Amortization	\$533	\$793	\$953	\$995	\$1,205	\$1,232	\$1,241
Capital expenditure	\$2,880	\$1,703	\$1,929	\$2,036	\$2,169	\$2,306	\$2,444
Long-term debt	\$8,909	\$10,062	\$10,846	\$11,610	\$13,178	\$15,837	\$17,146
Pension Obligation	\$298	\$345	\$1,182	\$1,396	\$1,173	\$1,498	\$1,657
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities	\$289	\$1,423	\$1,106	\$1,196	\$1,291	\$1,583	\$1,669
Total Liabilities	\$9,496	\$11,830	\$13,134	\$14,202	\$15,642	\$18,918	\$20,472
Total Equity	\$2,881	\$3,219	\$3,500	\$3,865	\$4,170	\$4,500	\$4,909
<u>Liquidity and Capital Resources</u>		<u>Standard</u>					
Most Recent Debt / Equity	81.0%	< 80%					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	N/A	N/A					

## Epcor

Jurisdiction	Regulated in Alberta; also British Columbia, Saskatchewan, Arizona, New Mexico and Texas
Ownership	City of Edmonton
Org. Type	- Municipally-owned commercial entity - City of Edmonton appoints the Board
Markets	Electricity transmission and distribution, water and wastewater service and other engineering services
Mandate (in addition to primary purpose of providing listed services to customers)	Investor Presentation (2015) - Operate on commercial terms and fund investments independently without reliance on its Shareholder for capital
Regulation	- Alberta Utility Commission
Customers	Total customer accounts: 1,750,000
Lines	- Distribution lines: 5,500 km - Transmission lines: 260 km

In CAD millions	EPCOR Utilities						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$1,489	\$1,833	\$1,959	\$1,955	\$1,927	\$2,018	\$1,946
Net income	\$105	\$144	\$19	\$175	\$191	\$260	\$309
Total assets	\$4,932	\$5,032	\$5,424	\$5,447	\$5,738	\$6,088	\$6,161
Property, plant and equipment	\$2,385	\$2,658	\$3,417	\$3,776	\$4,112	\$4,568	\$4,983
Depreciation & Amortization	\$98	\$105	\$133	\$145	\$159	\$178	\$189
Capital expenditure	\$245	\$338	\$360	\$444	\$385	\$463	\$502
Long-term debt	\$1,453	\$1,682	\$1,956	\$1,957	\$1,963	\$1,875	\$1,905
Pension Obligation							
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities	\$532	\$586	\$741	\$783	\$847	\$920	\$1,016
Total Liabilities	\$1,985	\$2,268	\$2,697	\$2,740	\$2,810	\$2,795	\$2,921
Total Equity	\$2,342	\$2,351	\$2,222	\$2,262	\$2,340	\$2,515	\$2,672
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	N/A	<u>Standard</u> < 75%					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	N/A	N/A					

## Enmax

Jurisdiction	Calgary; also other parts of Alberta
Ownership	City of Calgary
Org. Type	Vertically-integrated and municipally-owned utility - The City Council appoints the board - Pays dividends
Markets	Electricity generation, transmission and distribution, and natural gas generation and distribution
Mandate (in addition to primary purpose of providing listed services to customers)	2016 Annual report: "we power the potential of people, businesses and communities by safely and responsibly providing electricity and energy services"
Regulation	- Alberta Utilities Commission
Customers	- Residential: 540,000 - Business: 36,000
Lines	- Distribution lines: 8,500 km - Transmission lines: 326 km
Sources of Production	- Natural gas, wind and solar. Also uses district heating
Energy produced	- 2016 electricity sales: 19,145 GWh
Net Export (Import)	N/A

In CAD millions	Enmax						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$2,404	\$3,080	\$3,160	\$3,417	\$3,457	\$3,066	\$2,801
Net income	\$178	\$185	\$225	\$353	\$184	\$49	\$105
Total assets	\$3,883	\$4,328	\$4,820	\$4,566	\$5,101	\$5,198	\$5,366
Property, plant and equipment	\$2,274	\$2,382	\$2,695	\$3,023	\$3,840	\$3,961	\$4,071
Depreciation & Amortization	\$165	\$162	\$164	\$168	\$178	\$229	\$215
Capital expenditure	\$320	\$342	\$395	\$299	\$378	\$338	\$306
Long-term debt	\$1,378	\$1,469	\$1,550	\$1,375	\$1,553	\$1,652	\$1,585
Pension Obligation					\$56	\$40	\$55
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities					\$361	\$395	\$457
Total Liabilities	\$1,378	\$1,469	\$1,550	\$1,375	\$1,970	\$2,087	\$2,097
Total Equity	\$1,845	\$1,944	\$2,162	\$2,460	\$2,281	\$2,299	\$2,291
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	N/A	<u>Standard</u> < 63%					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	N/A	N/A					



## Hydro Quebec

Jurisdiction	Quebec; also wholesale markets in northeastern regions in North America (e.g. Ontario, New England)
Ownership	Government of Quebec
Org. Type	Crown Corporation Pays dividends
Markets	Electricity generation, transmission and distribution
Mandate (in addition to primary purpose of providing listed services to customers)	From the <i>Hydro-Quebec Act</i> : "The objects of the Company are to supply power and to pursue endeavours in energy-related research and promotion, energy conversion and conservation, and any field connected with or related to power or energy"
Regulation	- Régie de l'énergie du Québec
Customers	Total customer accounts: 4,244,541 - Residential: 3,924,992 - Commercial, institutional and small industrial: 314,816 - Large industrial: 183 - Other: 4,550
Lines	- Distribution lines: 116,794 km - Transmission lines: 34,292 km
Sources of Production	- Hydroelectric and thermal
Energy produced	Total: 36,908 MW installed capacity - Hydroelectric: 36,366 MW (including Churchill fall) - Thermal: 542 MW Total electricity sales in 2016: 202 TWh Energy Purchased: \$1.866 billion worth of energy and fuel purchases
Imported Energy	
Exported Energy	Net export of \$1.568 billion for 32.6 TWh in electricity sales representing 16% of sales

In CAD millions	Hydro Quebec						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$12,484	\$12,245	\$12,136	\$12,878	\$13,652	\$13,754	\$13,339
Net income	\$2,515	\$2,611	\$860	\$2,942	\$3,325	\$3,147	\$2,861
Total assets	\$65,809	\$69,637	\$70,508	\$73,110	\$73,108	\$75,199	\$75,167
Property, plant and equipment	\$55,537	\$56,901	\$57,174	\$59,077	\$60,413	\$61,558	\$62,691
Depreciation & Amortization	\$2,732	\$2,771	\$2,715	\$2,631	\$2,740	\$2,872	\$2,770
Capital expenditure	\$3,916	\$3,508	\$3,673	\$4,055	\$3,675	\$3,340	\$3,363
Long-term debt	\$36,727	\$41,025	\$42,830	\$43,320	\$43,846	\$43,924	\$44,511
Pension Obligation							
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$36,727	\$41,025	\$42,830	\$43,320	\$43,846	\$43,924	\$44,511
Total Equity	\$18,566	\$18,834	\$18,982	\$19,394	\$17,961	\$19,475	\$19,704
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	69.5%	N/A					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	2.16 x	N/A					

## Nalcor

Jurisdiction	Newfoundland and Labrador
Ownership	Government of Newfoundland and Labrador
Organization Type	Crown corporation Pays dividends
Markets	Electricity generation, transmission and distribution, off-shore Oil and Gas, fabrication site and energy marketing
Mandate (in addition to primary purpose of providing listed services to customers)	Among others, under the legislation under the Energy Corporation Act: - "Exploring for, developing, producing, refining, marketing and transporting hydrocarbons and products from hydrocarbons"
Rate Regulation	Public Utilities Board
Customers	Total direct customer accounts: 38,000
Lines	Transmission line under construction: 4,861 km
Sources of Production	Hydroelectric, Thermal and Diesel
Energy produced	Total (2016): 40,025 GWh - Churchill falls (Hydro-electric): 33,806 GWh - Hydro: (4,380 GWh hydraulic, 1,740 GWh thermal and 66 GWh diesel) - Menihék (hydro-electric): 19 GWh - Purchased: 426 GWh
Imported Energy	
Exported Energy	29,622 GWh export (79% of total Electricity sales) – includes Churchill Falls

In CAD millions	Nalcor Energy						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$602	\$714	\$726	\$785	\$798	\$811	\$824
Net income	\$78	\$129	\$93	\$88	\$116	(\$16)	\$136
Total assets	\$2,805	\$3,042	\$3,447	\$9,524	\$10,643	\$12,322	\$14,062
Property, plant and equipment	\$2,096	\$2,238	\$2,414	\$2,811	\$3,743	\$5,659	\$8,325
Depreciation & Amortization	\$55	\$68	\$85	\$79	\$89	\$93	\$159
Capital expenditure	\$178	\$196	\$254	\$477	\$985	\$1,774	\$2,421
Long-term debt	\$1,147	\$1,141	\$1,174	\$1,208	\$6,048	\$6,241	\$6,008
Pension Obligation	\$60	\$66	\$74	\$119	\$145	\$116	\$117
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities	\$41	\$33	\$33	\$547	\$544	\$1,053	\$1,711
Total Liabilities	\$1,248	\$1,241	\$1,281	\$1,874	\$6,736	\$7,410	\$7,836
Total Equity	\$1,142	\$1,265	\$1,430	\$1,565	\$2,268	\$2,974	\$3,805
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	68.0%	Standard < 70%					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	Good	> 1.5 x					

## New Brunswick Power

Jurisdiction	New Brunswick
Ownership	Government of New Brunswick
Organization Type	Crown Corporation Pays dividends
Markets	Electricity generation, transmission and distribution and energy trading
Mandate (in addition to primary purpose of providing listed services to customers)	From most recent 10-year strategic plan: "In addition, the Minister, by way of a Mandate Letter, has given NB Power the responsibility for delivery of the following: <ul style="list-style-type: none"> <li>- Maintaining and creating jobs in the resource sector in an economically sustainable fashion</li> <li>- Working with the other Atlantic Provinces and neighbouring jurisdictions to improve regional cooperation</li> <li>- Working with the federal government in ongoing investment and energy-related issues</li> <li>- Meeting debt reduction targets as established in NB Power's 10-year plan</li> <li>- Protecting and improving our environment"</li> </ul>
Rate Regulation	New Brunswick Energy and Utilities Board (EUB)
Customers	Total customers: 399,055 (of which 45,242 are indirect)
Lines	Distribution lines: 21,050 km Transmission lines: 6,830 km
Sources of Production	Thermal, Hydro, Nuclear and Combustion Turbine
Energy produced	2016-2017 (ending March 31st) – Total generation: 11,702 GWh: <ul style="list-style-type: none"> <li>- Thermal: 3,992 GWh</li> <li>- Hydro: 2,848 GWh</li> <li>- Nuclear: 4,860 GWh</li> <li>- Combustion Turbine: 2 GWh</li> <li>- Purchases: 6,206 GWh</li> </ul>
Imported Energy	
Exported Energy	2016-2017 export sales: G,360 MWh (20.5% of sales, but includes energy trading across New Brunswick)

In CAD millions	NB Power						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$1,635	\$1,616	\$1,697	\$1,328	\$1,791	\$1,791	\$1,696
Net income	\$67	\$173	\$65	\$55	\$73	\$12	\$27
Total assets	\$5,632	\$6,006	\$6,689	\$6,863	\$6,811	\$5,895	\$5,959
Property, plant and equipment	\$1,242	\$1,530	\$2,067	\$4,072	\$4,011	\$4,237	\$4,280
Depreciation & Amortization	\$171	\$187	\$153	\$198	\$208	\$226	\$233
Capital expenditure	\$238	\$279	\$296	\$179	\$264	\$231	\$278
Long-term debt	\$3,417	\$3,469	\$4,370	\$4,567	\$4,025	\$4,124	\$4,007
Pension Obligation						\$153	\$137
Decommissioning and Used Fuel Mgmt						\$866	\$739
Generating Station Decommissioning and Used Fuel Mgmt	\$471	\$489	\$549	\$587	\$635		
Provisions							
Other Liabilities							
Total Liabilities	\$3,888	\$3,958	\$4,919	\$5,154	\$4,660	\$5,143	\$4,883
Total Equity	\$306	\$454	\$277	\$399	\$325	\$207	\$320
Liquidity and Capital Resources							
Most Recent Debt / Equity	94.0%						Standard < 80%
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	1.14 x						N/A

## Ontario Power Generation

Jurisdiction	Ontario
Ownership	Government of Ontario
Org. Type	Crown Corporation Pays dividends
Markets	Electricity generation
Mandate (in addition to primary purpose of providing listed services to customers)	<ul style="list-style-type: none"> <li>- <a href="http://www.opg.com/about/management/open-and-accountable/Documents/memorandum.pdf">http://www.opg.com/about/management/open-and-accountable/Documents/memorandum.pdf</a> - among others;</li> <li>- "OPG shall support the Province's economic development objectives where feasible, including generating financial benefits that remain within the Province of Ontario"</li> <li>- "OPG shall inform the Shareholder of any solar and wind developments or projects that the Corporation intends to undertake or assume, including the sources of the Corporation's financing, before undertaking or assuming such developments or projects"</li> <li>- "Where appropriate, OPG shall pursue prospective generation related developments with First Nations and Metis communities that can provide the basis for long-term mutually beneficial commercial arrangements"</li> </ul>
Regulation	- Ontario Energy Board
Customers	-
Lines	-
Sources of Production	- Contracted Generation <sup>1</sup> , Hydroelectric, Nuclear and Other
Energy produced	Total 2016: 78.2 TWh <ul style="list-style-type: none"> <li>- Contracted Generation<sup>1</sup>: 3.1 TWh</li> <li>- Hydroelectric: 29.5 TWh</li> <li>- Nuclear: 45.6 TWh</li> </ul>

1. Includes OPG's thermal and hydroelectric generating stations that are under contracts, wind turbines and OPG's share of the Portland Energy Centre and Brighton Beach Generating Stations

<i>In CAD millions</i>	Ontario Power Generation						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$5,367	\$4,964	\$4,732	\$4,863	\$4,963	\$5,476	\$5,653
Net income	\$649	\$338	\$367	\$135	\$804	\$402	\$436
Total assets	\$29,577	\$34,443	\$37,601	\$38,091	\$41,653	\$44,250	\$44,372
Property, plant and equipment	\$13,555	\$14,633	\$15,860	\$16,738	\$17,593	\$20,595	\$19,998
Depreciation & Amortization	\$698	\$694	\$664	\$963	\$754	\$1,100	\$1,257
Capital expenditure	\$978	\$1,145	\$1,427	\$1,568	\$1,545	\$1,376	\$1,704
Long-term debt	\$3,843	\$4,341	\$5,109	\$5,620	\$5,227	\$5,186	\$4,417
Pension obligation	\$1,908	\$5,463	\$6,697	\$5,369	\$6,620	\$5,682	\$5,909
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$5,751	\$9,804	\$11,806	\$10,989	\$11,847	\$10,868	\$10,326
Total Equity	\$8,085	\$7,626	\$7,904	\$8,334	\$9,467	\$10,045	\$10,508
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	N/A	N/A					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	5.10 x	N/A					

## SaskPower

Jurisdiction	Saskatchewan
Ownership	Government of Saskatchewan
Org. Type	Crown Corporation Pays dividends
Markets	Electricity generation, transmission and distribution and energy trading through NorthPoint energy
Mandate (in addition to primary purpose of providing listed services to customers)	Annual report: "Ensuring reliable, sustainable and cost-effective power for our customers and the communities we serve..."
Regulation	- Saskatchewan Rate Review Panel
Customers	Total customer accounts: 528,000
Lines	- Distribution lines: 144,339 km - Transmission lines: 14,384 km
Sources of Production	- Hydro, Coal, Natural Gas and Wind
Energy produced	Total (2016): 24,374 GWh - Coal: 10,759 GWh - Gas: 8,729 GWh - Hydro: 3,525 GWh - Wind: 740 GWh - Imports: 478 GWh - Other: 143 GWh Purchase: \$661M worth
Imported Energy	475 GWh (2015)
Exported Energy	12 months (2016) 71 GWh (\$8M representing 0.35% of sales)

In CAD millions	SaskPower						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$1,681	\$1,827	\$1,850	\$2,042	\$2,155	\$2,296	\$2,308
Net income	\$204	\$248	\$135	\$114	\$60	\$40	\$21
Total assets	\$5,699	\$6,282	\$6,969	\$8,604	\$9,674	\$10,284	\$10,434
Property, plant and equipment	\$4,923	\$5,387	\$6,030	\$7,641	\$8,548	\$9,071	\$9,140
Depreciation & Amortization	\$266	\$290	\$316	\$355	\$389	\$452	\$456
Capital expenditure	\$517	\$575	\$922	\$1,225	\$1,194	\$944	\$900
Long-term debt	\$2,708	\$2,707	\$2,980	\$3,568	\$4,350	\$4,849	\$5,025
Pension Obligation	\$203	\$315	\$340	\$153	\$233	\$231	\$264
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions	\$119	\$145	\$162	\$158	\$193	\$198	\$201
Other Liabilities	\$409	\$552	\$430	\$1,131	\$1,130	\$1,126	\$1,122
Total Liabilities	\$3,439	\$3,719	\$3,912	\$5,010	\$5,906	\$6,404	\$6,612
Total Equity	\$1,758	\$1,864	\$1,858	\$2,223	\$2,178	\$2,204	\$2,146
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	75.7%	N/A					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	2.16 x	N/A					

## Toronto Hydro

Jurisdiction	Toronto
Ownership	City of Toronto
Org. Type	Holding Company Pays dividends
Markets	Electricity distribution
Mandate (in addition to primary purpose of providing listed services to customers)	
Regulation	- Ontario Energy Board
Customers	Total customer accounts: 761,000 - Residential: 679,717 - General service: 81,321 - Large users: 44
Lines	Total distribution lines: 28,600 km - Overhead wires: 15,570 km - Underground wires: 13,040
Sources of Production	-
Energy produced (or transmitted or distributed)	Total distribution: 25,373 GWh (2016) - Residential: 5,313 GWh - General service: 17,836 GWh - Large users: 2,225 GWh

In CAD millions	Toronto Hydro						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$2,612	\$2,823	\$2,852	\$3,203	\$3,273	\$3,540	\$4,030
Net income	\$66	\$96	\$86	\$121	\$112	\$127	\$151
Total assets	\$3,339	\$3,528	\$3,539	\$3,798	\$4,328	\$4,687	\$4,954
Property, plant and equipment	\$2,129	\$2,399	\$2,527	\$2,664	\$3,250	\$3,589	\$3,907
Depreciation & Amortization	\$169	\$151	\$142	\$173	\$185	\$194	\$212
Capital expenditure	\$362	\$384	\$260	\$359	\$526	\$551	\$512
Long-term debt	\$1,165	\$1,470	\$1,000	\$1,449	\$1,641	\$1,885	\$1,835
Pension Obligation	\$170	\$236	\$244	\$231	\$287	\$297	\$281
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities	\$274	\$215	\$206	\$183	\$80	\$107	\$283
Total Liabilities	\$1,609	\$1,921	\$1,450	\$1,863	\$2,009	\$2,289	\$2,398
Total Equity	\$1,039	\$1,102	\$1,140	\$1,219	\$1,444	\$1,513	\$1,598
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity	N/A	< 75%					
Most Recent Interest Coverage							
Most Recent Debt Service Coverage	N/A	N/A					

## Basin Electric Power Cooperative

Jurisdiction	Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota and Wyoming
Ownership	- Member cooperatives - Not-for-profit
Org. Type	Member cooperative
Markets	Electricity generation and transmission
Mandate (in addition to primary purpose of providing listed services to customers)	-
Regulation	- Federal Energy Regulatory Commission
Customers	-
Lines	- Transmission lines: 3,516 km
Sources of Production	- Coal, gas, oil, nuclear, distributed and renewable (including wind)
Energy produced	Total electricity sales (2016): 23 million MWh Total capacity as of 2017: 6,698 MW - Coal: 45% - Renewables: 21% (wind is 20%, remaining is recovered energy) - Hydro: 5% - Nuclear: 1% - Natural gas: 20% - Oil 3% - Unspecified: 5%
Imported Energy	
Exported Energy	- Non-member "others" of sales is 139,000,000 of \$1.56 B in total revenue (approximately 8.9%)

In CAD millions	Basin Electric Power Cooperative						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$982	\$1,026	\$1,196	\$2,082	\$2,672	\$2,716	\$2,716
Net income	\$9	\$100	\$120	\$49	\$58	\$11	\$73
Total assets	\$5,254	\$5,837	\$6,031	\$6,472	\$9,863	\$9,872	\$9,872
Property, plant and equipment	\$4,225	\$4,554	\$4,597	\$5,062	\$5,818	\$7,615	\$7,912
Depreciation & Amortization	\$118	\$132	\$185	\$211	\$294	\$246	\$0
Capital expenditure	\$908	\$500	\$341	\$385	\$870	\$886	\$886
Long-term debt	\$2,537	\$3,161	\$3,614	\$3,583	\$5,564	\$5,559	\$5,559
Pension Obligation							
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt Provisions							
Other Liabilities	\$394	\$478	\$609	\$659	\$596	\$722	\$624
Total Liabilities	\$2,932	\$3,639	\$4,223	\$4,242	\$6,160	\$6,281	\$6,183
Total Equity	\$924	\$1,002	\$1,098	\$1,353	\$1,514	\$1,810	\$1,808
<u>Liquidity and Capital Resources</u>							
Equity to asset ratio							24%
Equity to asset ratio target							18%

## Bonneville Power Administration

Jurisdiction	Idaho, Oregon, Washington, western Montana and smaller parts of Eastern Montana, California, Nevada, Utah and Wyoming
Ownership	Part of U.S. Department of Energy
Org. Type	<ul style="list-style-type: none"> <li>- Non-profit federal power marketing administration</li> <li>- No formal administrative authority or board of directors beyond its administrator and whatever oversight provided by the Department of Energy, FERC and Congress which reviews budget and power rates to ensure they are adequate to <b>cover the agency's expenditures</b></li> </ul>
Markets	Energy production and transmission
Mandate (in addition to primary purpose of providing listed services to customers)	Mission statement on website (among general duties: "Mitigation of the Federal Columbia River Power System's impacts on fish and wildlife")
Regulation	<ul style="list-style-type: none"> <li>- Federal Energy Regulatory Commission</li> </ul>
Customers	<ul style="list-style-type: none"> <li>- Total:142</li> <li>- Cooperatives: 54</li> <li>- Municipalities: 42</li> <li>- Public utility districts: 28</li> <li>- Federal agencies: 7</li> <li>- Investor-owned utilities: 6</li> <li>- Direct-service industries: 2</li> <li>- Port districts: 1</li> <li>- Tribal utilities: 2</li> </ul>
Lines	<ul style="list-style-type: none"> <li>- Transmission lines: 24,523 km</li> </ul>
Sources of Production	<ul style="list-style-type: none"> <li>- Hydroelectric, combustion turbines, coal, cogeneration , nuclear and renewables</li> </ul>
Energy produced	<ul style="list-style-type: none"> <li>- Regional resources: 38,598 average MW (Hydro; 53%, combustion turbines; 18%, coal; 15%, cogeneration 7%, Nuclear; 3%; renewables; 0.4%)</li> <li>- Federal resources: 9,089 average (of which 7,919 MW came from Hydro generation)</li> </ul>
Imported Energy	<ul style="list-style-type: none"> <li>- Imported 3.1% of regional resources (1,197 MW)</li> </ul>
Exported Energy	

In CAD millions	Bonneville Power Administration						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$3,055	\$3,285	\$3,318	\$3,346	\$3,600	\$3,404	\$3,433
Net income	(\$128)	\$82	\$87	(\$105)	\$444	\$405	\$277
Total assets	\$19,669	\$23,175	\$24,265	\$24,272	\$24,932	\$25,549	\$24,898
Property, plant and equipment	\$10,220	\$10,702	\$11,364	\$11,797	\$12,281	\$12,859	\$13,278
Depreciation & Amortization	\$368	\$394	\$389	\$430	\$441	\$448	\$471
Capital expenditure	\$684	\$787	\$862	\$779	\$843	\$965	\$808
Long-term debt	\$12,442	\$12,846	\$13,883	\$14,259	\$14,474	\$15,055	\$14,708
Total Liabilities	\$12,442	\$12,846	\$13,883	\$14,259	\$14,474	\$15,055	\$14,708
Total Equity	\$2,429	\$2,510	\$2,596	\$2,432	\$2,823	\$3,176	\$3,393
<u>Liquidity and Capital Resources</u>							
Debt service coverage ratio							5.1x
Standard							~1x



## Long Island Power Authority

Jurisdiction	Nassau County, Long Island; Suffolk County, Long Island; Rockaway, Queens
Ownership	State of New York
Org. Type	Municipal sub-division of the State of New York - Board appointed by State of New York
Markets	Electricity transmission and distribution
Mandate (in addition to primary purpose of providing listed services to customers)	-
Regulation	- New York Department of Public Service
Customers	- Residential: 1,005,751 - Commercial: 115,033 - Street lighting: 5,479 - Other Public Authorities: 129
Lines	- Transmission lines: 2,198 km - Distribution lines: 22,072 km

In CAD millions	Long Island Power Authority						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$3,975	\$3,645	\$3,544	\$3,869	\$3,992	\$4,484	\$4,504
Net income	\$57	\$19	(\$65)	\$50	\$65	\$67	(\$36)
Total assets	\$11,528	\$12,001	\$12,111	\$12,717	\$15,327	\$18,024	\$17,621
Property, plant and equipment	\$6,340	\$6,662	\$6,510	\$7,009	\$7,748	\$10,459	\$10,429
Depreciation & Amortization	\$259	\$265	\$272	\$288	\$238	\$301	\$349
Capital expenditure	\$256	\$263	\$330	\$344	\$487	\$507	\$705
Long-term debt	\$6,327	\$6,486	\$6,440	\$7,423	\$8,772	\$10,278	\$10,433
Pension Obligation							
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$6,327	\$6,486	\$6,440	\$7,423	\$8,772	\$10,278	\$10,433
Total Equity	\$375	\$403	\$330	\$402	\$503	\$668	\$611
<u>Liquidity and Capital Resources</u>							
Fixed charge coverage ratio							1.19x
Standard							1.15x

## Los Angeles Department of Water and Power

Jurisdiction	Los Angeles and surrounding communities
Ownership	City of Los Angeles Pays contributions to Los Angeles' reserve fund
Org. Type	Municipal utility
Markets	Electricity generation, transmission and distribution and water system management
Regulation	- Self-regulated
Customers	Total power system customers: ~1,500,000 - Residential: 1,370,000 - Commercial and industrial: 123,000 - All other: ~7,000
Lines	N/A
Sources of Production	Department owned - Natural gas - Large Hydro - Renewables Jointly-owned - Coal - Natural Gas - Hydro - Nuclear - Renewables
Energy produced	- Total electricity sales in 2016 (GWh): 25,300 Capacity breakdown on department owned facilities - Natural gas: 42% - Large Hydro: 15% - Renewables: 4%

In CAD millions	Los Angeles Department of Power & Water						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$4,274	\$3,889	\$3,908	\$4,223	\$4,774	\$5,184	\$6,167
Net income	\$411	\$99	\$196	\$289	\$307	\$170	\$437
Total assets	\$18,231	\$17,926	\$19,139	\$21,571	\$25,607	\$31,599	\$34,172
Property, plant and equipment	\$12,089	\$11,711	\$13,448	\$14,772	\$16,173	\$20,522	\$22,500
Depreciation & Amortization	\$468	\$515	\$531	\$534	\$656	\$766	\$928
Capital expenditure	\$1,217	\$1,281	\$1,528	\$1,389	\$1,872	\$2,223	\$2,048
Long-term debt	\$8,941	\$9,323	\$9,727	\$11,642	\$12,855	\$16,309	\$18,308
Pension Obligation				\$18	\$51		
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$8,941	\$9,323	\$9,727	\$11,661	\$12,906	\$16,309	\$18,308
Total Equity	\$7,662	\$7,051	\$7,648	\$8,207	\$8,653	\$10,308	\$11,145
<u>Liquidity and Capital Resources</u>							
Debt service coverage ratio							2.74x
Debt service coverage ratio target							2.25x
Debt to capitalization							~62%

## New York Power Authority

Jurisdiction	State of New York
Ownership	State of New York
Org. Type	- State Public Power Organization - Pays "contributions to New York State"
Markets	Electricity generation and transmission
Mandate (in addition to primary purpose of providing listed services to customers)	- To power the economic growth and competitiveness of New York State
Regulation	- Federal Energy Regulatory Commission
Customers	- Public entities: 100+ - Municipal electric systems: 47 - Rural electric cooperatives: 4 - Business and Industry: 800+ - Others: healthcare, education and cultural institutions, host communities, and electricity providers
Lines	- Transmission lines: 2253 km
Sources of Production	- Hydroelectricity and natural gas
Energy produced	Total generation in 2016: 29,000,000 MWh - Hydroelectricity: 75% - Remaining composed of natural gas and purchased - \$514M of purchase power

In CAD millions	New York Power Authority						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$2,645	\$2,627	\$2,672	\$3,121	\$3,507	\$3,208	\$3,208
Net income	\$180	\$299	\$174	\$265	\$315	\$103	\$30
Total assets	\$7,578	\$9,185	\$9,074	\$9,917	\$11,062	\$12,835	\$12,835
Property, plant and equipment	\$3,677	\$4,992	\$4,803	\$5,069	\$5,479	\$6,629	\$6,481
Depreciation & Amortization	\$168	\$192	\$226	\$235	\$256	\$306	\$300
Capital expenditure	\$82	\$108	\$145	\$170	\$242	\$309	\$283
Long-term debt	\$1,488	\$1,374	\$1,132	\$1,220	\$1,225	\$1,089	\$1,089
Pension Obligation							
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$1,488	\$1,374	\$1,132	\$1,220	\$1,225	\$1,089	\$1,089
Total Equity	\$2,985	\$3,350	\$3,459	\$3,951	\$4,622	\$5,632	\$5,482
<u>Liquidity and Capital Resources</u>							
Fixed charge coverage ratio							2.3x
Standard							1.75x

## Santee Cooper

Jurisdiction	All 46 counties in the State of South Carolina
Ownership	South Carolina
Org. Type	- State-owned - Board is appointed by the governor a
Markets	- Electricity generation and operation of water systems
Mandate (in addition to primary purpose of providing listed services to customers)	-
Regulation	- Federal Energy Regulatory Commission
Customers	- Retail: 24% - Wholesale: 62% - Large Industrial: 14%
Lines	- Transmission lines: 8,135 km - Distribution lines: 4,604 km
Sources of Production	- Coal - Natural gas & oil - Nuclear - Other
Energy produced	2016 Total: 23,000 GWh - Coal: 48% - Natural gas & oil: 19% - Nuclear: 11% - Other: 2%
Power Purchase Agreements	Purchased 20% of 2016 energy sources

In CAD millions	Santee Cooper						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$1,952	\$1,894	\$1,887	\$1,871	\$2,206	\$2,404	\$2,313
Net income	\$99	\$131	\$85	\$68	\$142	\$44	\$117
Total assets	\$7,917	\$8,389	\$9,713	\$11,380	\$13,018	\$16,940	\$16,826
Property, plant and equipment	\$4,846	\$5,177	\$5,918	\$6,775	\$8,035	\$10,384	\$11,049
Depreciation & Amortization	\$210	\$203	\$209	\$203	\$192	\$225	\$235
Capital expenditure	\$227	\$376	\$488	\$752	\$801	\$751	\$1,492
Long-term debt	\$4,728	\$5,075	\$5,386	\$6,862	\$7,433	\$9,626	\$10,305
Pension Obligation						\$286	\$325
Decommissioning and Used Fuel Mgmt							
Generating Station Decommissioning and Used Fuel Mgmt							
Provisions							
Other Liabilities							
Total Liabilities	\$4,728	\$5,075	\$5,386	\$6,862	\$7,433	\$9,912	\$10,630
Total Equity	\$1,747	\$1,921	\$1,965	\$2,168	\$2,519	\$2,685	\$2,731
<u>Liquidity and Capital Resources</u>							
Fixed charge coverage ratio							1.41x
Debt to capitalization							79%
Both meeting standards							

## Tennessee Valley Authority

Jurisdiction	Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee and Virginia
Ownership	United States Government
Org. Type	<ul style="list-style-type: none"> <li>- Government-owned independent corporation (Corporate agency of the U.S.) – federal legislation</li> <li>- Board members are nominated by POTUS – no current politicians on the Board</li> </ul>
Markets	Electricity generation and transmission, flood control, navigation and land management
Mandate (in addition to primary purpose of providing listed services to customers)	<ul style="list-style-type: none"> <li>- Website: “Business and economic development, and creation of jobs”</li> <li>- Investor Presentation: “Leverage competitive rates to attract and retain good jobs and capital investment in the valley”</li> </ul>
Regulation	<ul style="list-style-type: none"> <li>- Federal Energy Regulatory Commission (only rates for interstate transmission lines)</li> <li>- No rate regulation for production / distribution</li> </ul>
Customers	<ul style="list-style-type: none"> <li>- 154 Local Power Companies</li> <li>- Serves 9 million people and 700,000 businesses across 7 states</li> </ul>
Lines	<ul style="list-style-type: none"> <li>- Transmission lines: ~26,070 km</li> <li>- Distribution lines:</li> </ul>
Sources of Production	<ul style="list-style-type: none"> <li>- Coal, Nuclear, hydroelectric and natural gas / oil</li> </ul>
Energy produced	Total FY 2016: 155,855 GWh in power sales <ul style="list-style-type: none"> <li>- Coal-fired: 34%</li> <li>- Nuclear: 39%</li> <li>- Hydroelectric: 9%</li> <li>- Natural gas / oil-fired: 18%</li> </ul>
Exported Energy	Not “export” exactly, but electricity sales to “Federal agencies and other”: \$134M (representing 1.3% of electricity sales)

In CAD millions	Tennessee Valley Authority						
	2010	2011	2012	2013	2014	2015	2016
Revenue	\$11,320	\$11,684	\$11,304	\$11,124	\$12,057	\$13,519	\$14,072
Net income	\$1,012	\$160	\$60	\$275	\$508	\$1,365	\$1,634
Total assets	\$44,001	\$48,244	\$46,562	\$47,471	\$51,104	\$65,309	\$66,233
Property, plant and equipment	\$28,643	\$30,474	\$29,242	\$30,809	\$34,016	\$43,419	\$44,654
Depreciation & Amortization	\$2,168	\$2,032	\$2,228	\$2,022	\$2,346	\$2,892	\$2,875
Capital expenditure	\$2,515	\$2,598	\$2,499	\$2,374	\$2,934	\$3,932	\$3,990
Long-term debt	\$24,359	\$24,556	\$21,651	\$25,038	\$26,723	\$32,674	\$29,820
Pension Obligation	\$4,729	\$6,007	\$6,279	\$5,348	\$5,839	\$7,107	\$6,929
Total Liabilities	\$29,088	\$30,563	\$27,930	\$30,386	\$32,562	\$39,781	\$36,749
Total Equity	\$5,287	\$5,438	\$5,239	\$5,814	\$6,841	\$9,651	\$11,045
<u>Liquidity and Capital Resources</u>							
Most Recent Debt / Equity							N/A
Most Recent Interest Coverage							N/A
Most Recent Debt Service Coverage							N/A

## **Appendix E – US Public Power Utilities; Credit Rating Information**

The following documents are appended here:

- Fitch credit rating criteria for US public power companies (highlights that cash flow sufficiency and ratings flexibility to maintain that sufficiency is critical to ratings)
- Fitch ratings summaries for Tennessee Valley Authority and Long Island Power Authority Bonds
- Moody's full credit rating report for Bonneville Power Administration
- Moody's rating summary for Tennessee Valley Authority
- S&P full credit rating report for Bonneville Power Administration



# U.S. Public Power Rating Criteria

## Sector-Specific Criteria

This report was amended effective March 25, 2016 to include a section on Criteria Variations that provides additional clarity regarding the application of criteria in Fitch's rating committee process.

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This criteria report replaces the prior version of the same title, dated March 18, 2014. There have been no material changes to the report.

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### Scope

This criteria report details Fitch Ratings' approach to rating U.S. public power utilities. It is a sector-specific extension of Fitch's global master criteria report, *Revenue-Supported Rating Criteria*. More specifically, the report elaborates on five key areas of operational and financial importance to the credit quality of municipal and cooperative power entities: governance and management strategy; assets and operations; cost and rate structure; customer profile and service area; and financial performance and legal provisions.

These key elements of Fitch's public power rating criteria remain largely consistent with its prior criteria reports. However, the importance of individual credit factors sometimes change as the industry evolves, particularly in response to new regulatory initiatives or as new market dynamics emerge. In addition, not all rating factors outlined in this report apply to each rating or rating action. Each specific rating action commentary or rating report discusses those factors most relevant to the individual rating decisions.

### Key Rating Drivers

**Rate Sufficiency and Flexibility:** A public power utility's ability and willingness to maintain rates sufficient to meet all its financial obligations is of paramount importance. Fitch considers how a utility's rate structure affects its capacity for the full and timely recovery of costs, as well as its flexibility to raise additional revenue. Ratemaking autonomy and the process for adjusting rates factor into this analysis.

**Comprehensive Strategic Planning and Risk Management:** The extent of strategic planning and risk management performed by a utility is a key indicator of management's preparedness and sophistication, and an important rating factor. Fitch typically reviews prior strategic and financial plans versus actual outcomes, as well as newly adopted strategies, to gauge management effectiveness.

**Resource Adequacy and Performance:** Ensuring the adequacy of resources to meet current and projected demand is a fundamental planning requirement of public power utilities. Together with demonstrated operating efficiency, it is an important factor in providing low-cost, reliable energy supply. Fitch measures resource adequacy and performance against industry standards for cost and reliability.

**Service Area Composition and Depth:** Service area characteristics demonstrate the breadth, depth and stability of a utility's constituents, as well as their financial wherewithal. Fitch considers customer composition and concentration; income levels; and employment, population and sales growth trends in this assessment.

**Financial Strength and Forecasting:** The strength and stability of a utility's financial metrics reveal its ability to meet all financial obligations, and detailed financial forecasting provides an indication of future performance. Fitch reviews a broad array of historical and projected financial metrics in an assessment of a utility's financial strength, as well as a utility's adherence to adopted financial policies. Financial metrics focus principally on three core areas: cash flow, liquidity and capital structure.

### Governance and Management Strategy

The strength of a utility's senior management and governing body is a key credit consideration in Fitch's analytical process and largely evaluated with qualitative observations. Interaction with utility management is key to this analysis.

Management's experience and ability to design and implement a comprehensive strategic plan is important to an issuer's rating, as is its ability to respond to unforeseen circumstances. A high degree of organizational understanding and support of a utility's business strategy and the issues facing the sector is also important.

### Achieving Strategic Goals

Fitch typically reviews prior strategic and financial plans versus actual outcomes in an assessment of management and governance effectiveness. A stronger management team consistently meets or exceeds financial projections, and deals well with unexpected developments. Moreover, Fitch takes into account the reasonableness of key financial and operational planning assumptions relative to prevailing economic conditions and industry trends.

### Comprehensive Resource Planning

Fitch analyzes a utility's integrated resource plan and its long-term strategies to provide reliable, high-quality, and low-cost service to its customers to determine if they are adequate and reasonable. Fitch monitors the implementation of those strategies and a utility's financial flexibility for responding to changing market conditions.

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### Major Components of a Comprehensive Strategic Plan

Forecasts of customer and load growth.

New generation, transmission or distribution requirements.

Plans to meet capital needs, including debt-financing forecasts.

Plans for rate increases.

Financial projections, including stress scenarios.

Risk management procedures and analysis.

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Fitch discusses with management the purpose, amount and structure of planned debt issuances, and any debt-management policies in assessing a utility's capital needs and their effect on its future debt profile and financial performance. Fitch assesses the willingness and ability of a utility's management and governing body to increase rates to ensure the measured, timely and adequate recovery of total costs. Fitch also evaluates the likely effect of rate increases on a utility's financial performance relative to its peer group.

#### Related Research

[U.S. Public Power Peer Study Addendum — February 2015 \(February 2015\)](#)

[2015 Outlook: U.S. Public Power and Electric Cooperative Sector \(Steady as She Goes\) \(December 2014\)](#)

[U.S. Public Power Peer Study — June 2014 \(June 2014\)](#)

#### Related Criteria

[Rating U.S. Public Finance Short-Term Debt \(January 2015\)](#)

[Criteria for Rating Prepaid Energy Transactions \(July 2014\)](#)

[Revenue-Supported Rating Criteria \(June 2014\)](#)



### Attributes: Governance and Management

#### Stronger

Tenured management team with extensive experience.

An objective, engaged and independent board of directors.

Transparency and strong communication between management, the board of directors and customers.

Strong coordinated efforts among utility system membership and the governing body.

Frequent analysis and updating of financial forecasts and resource-management plans.

Success meeting results from prior financial forecasts.

Well-developed and documented risk management policies and procedures.

Documented succession planning.

#### Midrange

Generally stable and capable management team.

A board of directors exhibiting solid local governance and modest turnover.

Comprehensive strategic and resource plans, demand forecasts and risk management policies that generally reflect current economic, system and political conditions.

#### Weaker

Management team characterized by inexperience or frequent turnover.

A detached, politically-appointed board of directors.

Significant political pressure and influence observed throughout municipality or service area.

Failure to maintain open communication between the utility and the board of directors, which may reveal itself in unexpected, significant rate increases.

Poor history of meeting financial forecasts and/or limited financial forecasting and rate planning.

Lack of adequate risk management policies and procedures.

### Preparing for Uncertainties

The extent of risk management performed by a utility is a key indicator of management's sophistication. Fitch views favorably a management team that is able to recognize and discuss risks (and mitigating factors) that could affect a system, and in turn, bondholder security. Such risks include participation in the fuel and energy commodity markets; plans for managing a large generation unit or transmission outage; reliance on off-system counterparty credit quality; and the effect of regulatory or legislative changes.

Fitch believes the ability to manage unforeseen circumstances without causing material changes to a utility's financial or operating position is a good indication of management planning and preparedness.

### Assets and Operations

Fitch analyzes the generation, transmission and distribution assets of public power and electric cooperative systems to determine if a utility's power supply mix and asset operating performance adequately meet existing and future demand requirements. This analysis may be informed through site visits, which are an important part of Fitch's review process, as well as quantitative measures.

### Resource Portfolio Benchmarking

Fitch benchmarks a utility's resource portfolio to that of industry standards, the regional market in which the utility operates, and other utilities in the rating category. This allows for a comparative analysis of a utility's relative strengths and weaknesses. Fitch considers the following areas in its assessment of resources:

- Fuel mix;
- Plant availability and capacity factors;
- Load factor;

- Heat rate; and
- Environmental mandates or goals.

### Integrated Resource Planning

Fitch analyzes how a utility's customer or load growth, expiring purchase power contracts, aging generation fleet and renewable mandates influence the demand for future power resources. Fitch considers the following areas in its assessment of a utility's integrated resource plan:

- The type of generation chosen and alternatives considered;
- The relative maturity of the proposed technology;
- The size and cost of the resource;
- The positioning of the resource within the utility's existing portfolio (baseload, intermediate or peaking);
- The availability of transmission and distribution resources; and
- Environmental factors.

Fitch does not have a systematic rating preference for owning assets versus purchasing power. On the contrary, Fitch's analysis considers the costs and benefits to individual utilities of both approaches.

### Fuel Cost and Supply Management

The ability to manage fuel costs is a key credit concern, because fuel is often a utility's largest budgetary expense. Factors related to fuel cost and supply that Fitch considers include:

- Fuel mix diversity;
- Fuel agreement flexibility;
- Fuel transportation arrangements; and
- Alternative fuels, if primary sources are not available.

Fitch also reviews a utility's hedging techniques as part of its risk management assessment. The use of financial and physical forward markets can help mitigate the risk of price volatility or a longer term trend of increasing prices. Fitch views prudent and conservative fuel hedging programs favorably. However, these initiatives may expose a utility to counterparty risk or collateral posting requirements as fuel prices rise or fall.

Fitch considers all aspects of a utility's hedging program in its analysis, including the relevant terms of hedging agreements, counterparty credit quality and available liquidity to support rising prices or collateral requirements. Although the optimal fuel cost and supply strategy varies by utility and is driven by the diversity of generating resources, sufficiency of fuel sources and the ability to mitigate associated risks, Fitch views a power supply portfolio that exhibits a broadly diversified fuel mix as most supportive of long-term credit quality.

### Environmental Considerations

Fitch conducts a review of a utility's compliance with current and proposed environmental standards to fully understand a system's future capital needs and operating expenses. Environmental retrofits can be costly on a capital basis and from an operating perspective, as increased captive consumption often results in lower plant output. Moreover, the cost to retrofit or improve older, smaller generating facilities may be high, rendering the generating facility uneconomic and subject to premature retirement. As such, the effect of more restrictive federal

and state environmental policies can have significant operating and financial repercussions for a utility that require careful, advanced planning

### **Renewable Resources**

Fitch reviews a utility's strategy for developing renewable or alternative power generation to gauge how a utility's resource mix will change, particularly when it must comply with a state renewable portfolio standard. Fitch also evaluates the capital and operational costs of the projects, and how they will ultimately affect financial metrics and customer rates.

Renewable energy projects are expected to have long-term environmental benefits. However, the intermittent nature of their generation and higher operating costs relative to traditional generating resources can pressure a utility's financial operations without adequate cost recovery. Fitch evaluates the availability and types of renewable resources, as well as transmission capacity, which vary by region.

### **Distribution and Transmission**

Fitch's review of transmission and distribution assets includes an assessment of reliability, as measured by the frequency of outages, line losses, etc., and the extent and timeliness of necessary capital improvements. Fitch evaluates the level of historical and planned system investment to determine if customer growth will affect the operations of the existing utility relative to a peer group. Fitch also reviews a utility's business strategy regarding its transmission connection with a regional operator or other transmission system. Membership in a regional transmission organization can be the optimal method of providing reliable access to market power.

### **Cost and Rate Structure**

Fitch analyzes a utility's cost structure and methods of adjusting rates to determine its rate-raising flexibility for the timely funding of financial operations and capital needs. The analysis is conducted bottom up, by looking at the costs to supply electricity to customers, and top down, by examining the structure of rates charged to users. A utility with overall rates below neighboring systems or systems with similar fuel mixes is generally viewed as having greater flexibility to use rates as a tool for funding. Strong service territory income measures typically enhance this flexibility.

### **Local Rate-Setting Authority**

Fitch views the flexibility most municipal systems and electric cooperatives have to independently adjust rates as a positive credit factor and distinguishing characteristic from comparable investor-owned utilities. Most public power systems are not subject to regulation by state public service commissions. Instead, public power systems typically maintain local authority to adjust rates as needed, which contributes to the timely recovery of costs. This provides management with the ability to raise rates to maintain financial stability, build liquidity or pay for portions of a capital improvement plan. Conversely, rate regulation generally limits financial flexibility and may delay the timing or amount of necessary rate increases.

### Attributes: Cost and Rate Structure

#### Stronger

Sole authority by an independent board to set rates and a demonstrated willingness to do so.  
 Service rates that are typically below those of neighboring utilities and regionally competitive.  
 Use of an automatic monthly fuel or purchased power adjustment for timely recovery of variable energy and fuel costs.  
 Timely and measured rate increases implemented in anticipation of multiyear capital spending.

#### Midrange

Authority to set customer or member rates, subject to the approval of an elected city council.  
 Comparable rates to neighboring utilities, and within range of regional averages.  
 Use of a fuel or purchased power adjustment that requires board approval or adjusts less frequently than monthly.  
 Well documented rate strategy for servicing capital spending and related debt obligations.

#### Weaker

Outside regulatory approval required for rate increases.  
 Political pressure that might limit or postpone needed rate increases, which could ultimately affect a utility's financial metrics.  
 Above average rates relative to a peer group, which reduces flexibility for managing unforeseen operating or other capital expenses.  
 Lack of any fuel or purchased power adjustment factor.

Fitch also considers the use of automatic or interim rate adjustments, which further ensure timely cost recovery, in its assessment of a utility's rate structure. Interim adjustments that may be implemented by a utility's management team — without the involvement of a governing board — can help ensure the overall stability of financial operations.

### Rate Competitiveness and Affordability

Fitch analyzes rate affordability with a mixture of qualitative and quantitative factors. Fitch's perception of high or volatile rates, lack of future rate flexibility or difficulty in obtaining timely rate relief may influence a utility's rating.

Fitch believes credit is due to those systems that consistently raise rates to preserve financial strength. However, Fitch believes these activities will be more sustainable when rate affordability is a focus of policymakers and cost containment is regularly employed. Fitch reviews a utility's rates relative to neighboring and comparable systems, and against service area income levels to gauge rate competitiveness and affordability.

### Customer Profile and Service Area

Service area characteristics provide an indication of the stability of a constituency's load, and ultimately its ability to pay electric bills. Stronger electric utilities typically serve growing, well-diversified areas. However, the essential nature of electric service and the remedies available to most public power providers (e.g. shutoffs and liens) make payment delinquencies in the sector extremely low, regardless of wealth and other economic indicators.

### Service Area Considerations

A utility's ability to maintain a sound operating position, despite changing service area characteristics, is an important rating consideration. Some of the factors Fitch considers in its assessment of a service area are shown in the table on page 7.

Fitch performs a more detailed analysis of an electric system's customer base to further evaluate the stability of the revenue source when there is industry or customer concentration. The latter is defined as one or a few large customers accounting for a material proportion of revenues (see table on page 7). Fitch conducts an analysis of all relevant member information

### Key Service Area Metrics

Indicator	Source	Significance
Economic Factors	U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis	A diversified economy is typically better positioned to absorb cyclical changes than an economy concentrated in a certain sector, providing for greater stability of revenues.
Customer Profile (Breakdown of Residential, Commercial and Industrial Customers)	Utility or consultant	A higher percentage of residential energy sales (more than 40%) typically provides for greater financial stability. Residential customers each account for very small percentages of total sales. As such, the loss of any single customer does not disrupt a utility's revenue stream.
Top 10 Customers	Utility or consultant	As a percentage of the total, 5% of sales to the largest customer or 25% of sales to the 10 largest customers reveals concentration in the revenue base, which can be disruptive if a large customer(s) leaves the area.
Population	U.S. Census	A growing service area typically leads to additional energy sales, in support of revenues.
kWh Sales (Breakdown of Residential, Commercial and Industrial Sales)	Utility or consultant	The trend of kWh sales provides an indication of the health of the local economy, with steady annual increases demonstrating sound economic and population growth.
Unemployment Rate	U.S. Bureau of Labor Statistics	Provides an indication of the relative depth of a local employment base.
Income Levels	U.S. Census and U.S. Bureau of Economic Analysis	Provides an indication of the relative ability to pay.

when reviewing wholesale public power suppliers, as necessary, to the extent that information is available.

### Financial Performance and Legal Provisions

The assessment of a utility's financial performance and policies, and the legal provisions underpinning specific debt issuances, are important considerations in Fitch's rating process. Fitch reviews five years of audited financial statements for an established utility to understand its historical trends and competitive position relative to a peer group. A utility's operating results, liquidity levels and capital structure are evaluated. Financial projections, including planning assumptions for load growth, rate increases and expenses, are likewise critical to the rating process.

### Financial Performance

Fitch's analysis of financial metrics focuses principally on three core areas: cash flow, liquidity, and capital structure. No single financial ratio stands apart from the rest. On the contrary, the ratios are examined together, providing a context for a utility's financial position that informs a complete analysis.

#### Cash Flow

Cash flow indicators, particularly as they pertain to debt service coverage, provide a measure of financial cushion to meet obligations to bondholders. Fitch primarily considers two measures of debt service coverage to compare utilities that own generation versus purchase power. The standard debt service coverage ratio measuring funds available for debt service to total debt service applies to all utilities.

An adjusted measure of debt service coverage — coverage of full obligations — is primarily for systems that own little or no generation. This ratio treats a percentage (30%) of purchased power costs as a debt-like obligation. Thirty percent is an approximation based on historical experience for that portion of off-balance sheet obligations that might otherwise be a fixed expense. The ratio provides a more conservative estimate of financial margin and facilitates

comparison with systems that own capital-intensive generating assets. This adjustment is particularly important for those arrangements where a wholesaler supplier has issued debt on behalf of obligated retail entities. See Appendices A and B.

**Liquidity**

Liquidity measures, such as days cash on hand and days liquidity on hand, provide an estimate of an issuer's ability to meet unplanned operating or other capital expenses. For the purpose of ratio calculation, cash typically includes unrestricted cash, cash equivalents and investments that can be converted to cash within a reasonable period of time. In some cases, restricted cash and investments may also be included if available for general system purposes, including the payment of debt service.

**Key Financial Ratios**

Ratio	Calculation	Significance
<b>Cash Flow</b>		
FADS (\$)	Operating Revenues – Operating Expenses + Depreciation + Interest Income <sup>a</sup>	Provides a measure of cash flow from operations.
Debt Service Coverage (x)	FADS/Total Annual Debt Service	Indicates the margin available to meet current debt service requirements.
Coverage of Full Obligations (x)	(FADS + Fixed Charge – General Fund Transfer and/or PILOT)/(Total Annual Debt Service + Fixed Charge) <sup>a</sup>	Indicates the margin available to meet all debt service and other fixed obligations.
Debt/FADS (x)	Total Debt/FADS	Indicates the size of debt compared to the margin available for debt service.
<b>Liquidity</b>		
Days Cash on Hand	Unrestricted Cash/(Operating Expenses – Depreciation) x 365	Indicates financial flexibility, specifically cash, cash equivalents and investments, relative to expenses.
Days Liquidity on Hand	(Unrestricted Cash + Available Lines of Credit and Commercial Paper Capacity)/(Operating Expenses – Depreciation) x 365	Indicates financial flexibility, including all available sources of cash and liquidity, relative to expenses.
<b>Capital Structure</b>		
Equity/Capitalization (%)	Total Equity/Capitalization	Provides a measure of cost recovery, leverage and additional debt capacity.
Debt Service/Cash Operating Expenses (%)	Total Annual Debt Service/(Operating Expenses + Total Annual Debt Service – Depreciation)	Provides an indication of debt burden relative to cash operating expenses.
Debt/Customer (\$)	Total Debt/Total Customers	Provides a measure for relative comparison of leverage.
Variable-Rate Debt/Total Debt (%)	Variable-Rate Debt/Total Debt	Provides context for an issuer's short-term obligations.
<b>Other</b>		
Operating Margin (%)	Operating Margin/Operating Revenues	Provides a measure of operating stability and capacity to manage an increase in debt service.
Capex/Depreciation and Amortization (%)	Capex/(Depreciation + Amortization)	Indicates whether annual capital spending keeps pace with depreciation.
FCF/Capex (\$)	(FADS – Total Annual Debt Service – General Fund Transfer and/or PILOT)/Capex	Indicates a utility's ability to internally fund capex.
Net Debt/Net Capital Assets (x)	(Total Debt – Cash and Reserve Funds)/Net Utility Plant	Provides a measure of leverage relative to the book value of physical assets.
General Fund Transfer/Operating Revenues (%)	(General Fund Transfer + PILOT)/Operating Revenues	Indicates the degree to which a utility provides city or county general fund support.

<sup>a</sup>Operating revenues exclude deferrals to and transfers from a rate stabilization fund. <sup>a</sup>Fixed charge – 30% of purchased power expense, which is an approximation of the associated fixed expense. Note: Includes unrestricted cash, cash equivalents and investments plus restricted cash and investments (if available for general system purposes). FADS – Funds available for debt service. PILOT – Payment in lieu of taxes.

Certain utilities, including many cooperatives, rely heavily on committed bank revolvers or lines of credit and commercial paper programs for access to short-term capital. As such, days liquidity on hand, reflecting undrawn short-term borrowing arrangements and unused commercial paper capacity, is also an important measure of financial flexibility. Fitch assesses the diversity and credit quality of liquidity providers, the ability to extend and replace bank agreements, the adequacy and terms of the liquidity support, and a borrower's short-term market access.

***Capital Structure***

A utility's capital structure, which encompasses the strength of its balance sheet, presents another indication of financial flexibility. More specifically, the equity-to-capitalization ratio measures a utility's ability to grow equity over time.

A rising equity ratio is viewed favorably, as it typically suggests adequate cost recovery in rates, load growth and a component of internal funding of capital investments. In addition, a robust level of system equity can indicate a heightened capacity for issuing additional debt to fund future capital needs.

***Debt Profile***

Fitch's assessment of a utility's debt profile considers the purpose, amount and structure of its existing debt. Fitch also considers any off-balance sheet obligations such as take-or-pay contracts or interest rate swap agreements for a complete assessment of fixed-expense obligations. Future financing plans, including the funding of a long-term capital program, and the renewal and replacement of any bank liquidity facilities, are also important considerations, particularly as they affect financial metrics.

The amount of hedged or unhedged variable-rate debt an issuer can manage is a function of its operating risk profile; the strength, predictability and amount of its cash flows; the level of available funds; and its management of interest rate exposure and maturities. Fitch assesses the resiliency of an issuer's financial metrics relative to a peer group when evaluating its ability to manage variable-rate and short-term debt exposure. Issuers with robust cash balances, broad rate-setting authority, and widespread access to the capital markets are typically better able to take on a greater percentage of variable-rate debt, as compared with issuers lacking these characteristics.

**Legal Provisions*****Aspects of the Bond Indenture***

The legal provisions of a bond indenture or resolution provide a framework for the establishment of funds and, ultimately, the repayment of a debt obligation. Consequently, Fitch analyzes indenture provisions, including security, revenue pledge, lien position, rate covenant, additional bonds test, debt service reserve fund and flow of funds to determine the relative strength of the security.

Bond covenants are important to overall bondholder protection, though the degree to which they influence a rating varies. These restrictive provisions take on greater importance the weaker the credit quality, as they are more likely to be tested.

***Municipally Owned Systems******Pledge of Revenues***

Fitch does not distinguish between a pledge of gross and net revenues for municipally owned systems, as all systems must fully cover annual operating expenses and debt service from total revenues. A weaker revenue pledge may allow for the inclusion of other available funds in the calculation of revenues.

**Rate Covenant**

The rate covenant provides a minimum level of protection and ensures a system reliably covers debt service by a certain margin. Fitch views it as an element of financial cushion. Rate covenants with only a 1.0x (sum sufficient) debt service coverage requirement, or those that allow inclusion of other funds in the calculation, are viewed as being weaker.

**Additional Bonds Test**

The terms of the additional bonds test often mimic the rate covenant. The strongest tests include both a historical and projected debt service coverage test and limit the period for calculating historical net revenues to the 12 months immediately preceding the issuance of additional debt.

**Attributes: Select Indenture Provisions — Municipal Systems**

Rate Covenant	Additional Bonds Test
<b>Stronger</b> Greater than 1.25x coverage of ADS by net revenues alone.	More than 1.25x coverage of MADS from net revenues. Typically, the test includes both a historical and projected revenue period; the test is met over a consecutive number of months.
<b>Midrange</b> Coverage of ADS between 1.10x and 1.25x by net revenues alone.	Coverage of MADS from net revenues of between 1.10x and 1.25x. Might only include a historical or projected net revenue coverage test; might allow inclusion of other available fund balances to meet the test.
<b>Weaker</b> Less than 1.10x coverage of ADS by net revenues plus available funds.	Less than 1.10x coverage of ADS from net revenues plus additional funds. Typically, a historical or projected test, with a looser interpretation of the revenue period (i.e. 12 consecutive months of the 24 months preceding the issuance of additional bonds).

ADS – Annual debt service. MADS – Maximum annual debt service.

**Debt Service Reserve Fund**

The incidence of relying on a debt service reserve fund to pay debt obligations is low, given the limited number of public power entities that Fitch rates below investment grade. However, maintaining additional legally restricted, cash-funded reserves is looked upon favorably, particularly for weaker credits. Fitch evaluates those instances where reserve funds have been funded with a surety from a financial guarantor on a case-by-case basis.

**Flow of Funds**

The flow of funds is fairly standardized for municipal utilities, providing for regular deposits to the debt service fund after the payment of operations and maintenance. As such, the flow of funds usually has little bearing on the rating, except in the uncommon instances when it deviates from the typical arrangement.

**Cooperatively Owned Systems**

**Security**

Unlike municipally owned utilities, cooperatives typically issue debt secured by a first lien on owned tangible and certain intangible assets, not net revenues. Pledged security for generation and transmission (G&T) cooperatives is also expected to include the power sales contracts with distribution members, which Fitch views as important.



Although Fitch believes a mortgage interest provides valuable bondholder support, it does not distinguish the ratings of a cooperative's senior secured and unsecured obligations. Fitch's public finance ratings consider an obligation's relative vulnerability to default; they do not consider the prospect of recovery post default. Therefore, the fact that an obligation may benefit from a higher recovery is not a basis for a higher rating.

**Rate Covenant**

Rate covenants provide a minimum level of protection and ensure a system reliably covers debt service by a certain margin. Cooperative rate covenants typically require cash flows sufficient to recover all costs and expenses, and to generate a minimum times interest earned or margins for interest ratio (e.g. 1.10x) for some measure of additional cushion.

Other than establishing minimum operating thresholds, these ratios provide marginal value in Fitch's analysis and are a limited rating factor, as most Fitch-rated cooperatives operate with stronger cash flows.

**Limitations on Patronage Capital**

Distributions of patronage capital — returns of excess capital — to member owners are typically limited under cooperative indentures until a specified ratio of equity to capitalization (generally 20%) has been achieved. These limitations provide a measure of balance sheet resource adequacy and some protection for bondholders vis-à-vis member owners.

**Effects of Litigation**

Fitch considers any litigation that might result in financial payments in its review of an issuer's legal framework. Any such payments that materially affect an issuer's balance sheet could result in a negative rating action.

## Key Analytical Considerations

### Governance and Management Strategy

- Type of governing body
- Management's experience and depth of industry knowledge
- Management's track record at achieving financial and strategic goals
- Business strategy and planning
- Extent of risk management

### Assets and Operations

- Review of generation mix and comparison to the region
- Historical operating performance of generation facilities
- Relative load balance or shortfall, and plans for meeting additional power needs
- Fuel supply and hedging contracts
- Compliance with environmental and renewable mandates
- Distribution and transmission issues

### Cost and Rate Structure

- State or federal regulatory oversight
- Process of adjusting rates to ensure timely and adequate cost recovery
- Structure and use of fuel or purchased power adjustment mechanism
- Rate-raising flexibility
- Cost and rate competitiveness

### Customer Profile and Service Area

- Economic and demographic makeup and trends
- Customer composition, including a breakout of kWh sales and revenues
- Customer revenue or business sector concentration
- Service area profiles of member systems, for joint action agencies and cooperatives

### Financial Performance and Legal Provisions

- Management's financial policies
- Historical five-year analysis of key cash flow, liquidity and leverage ratios
- Financial projections and reasonableness of key assumptions
- Existing debt characteristics and future financing needs
- Financial analyses of the largest member distribution systems, for joint action agencies and cooperatives
- Review of indenture provisions and bond security features
- Type, length and renewal terms of wholesale power contracts
- Any material pending litigation

### Variations from Criteria

Fitch's criteria are designed to be used in conjunction with experienced analytical judgment exercised through a committee process. The combination of transparent criteria, analytical judgment applied on a transaction-by-transaction or issuer-by-issuer basis, and full disclosure via rating commentary strengthens Fitch's rating process while assisting market participants in understanding the analysis behind our ratings.

A rating committee may adjust the application of these criteria to reflect the risks of a specific transaction or entity. Such adjustments are called variations. All variations will be disclosed in the respective rating action commentaries, including their impact on the rating where appropriate.

A variation can be approved by a ratings committee where the risk, feature, or other factor relevant to the assignment of a rating and the methodology applied to it are both included within the scope of the criteria, but where the analysis described in the criteria requires modification to address factors specific to the particular transaction or entity.

## Appendix A — Wholesale Public Power Suppliers

This criteria appendix provides additional guidelines for rating wholesale public power suppliers, a subset of the U.S. Public Power sector. Most of the key factors considered in rating public power entities are the same. However, different functional characteristics of the sector's participants sometimes result in credit considerations that are unique and financial metrics that are less comparable for a given rating level. This appendix will elaborate on those characteristics and how they influence Fitch's approach to rating wholesale suppliers.

### Key Highlights

#### Power Supply Requirements Vary

Wholesale public power suppliers typically supply power to retail electric utilities. Most wholesale systems are organized by municipally owned retail power systems as joint action agencies (JAAs) or by cooperatively owned systems as G&T cooperatives to exclusively provide all or a portion of their members' power requirements. Other wholesale suppliers include state or federally owned entities.

#### Typically Member Governed

Most wholesale suppliers are governed by all or a subset of the members they serve, aligning the incentives of the contractual parties and strengthening the related obligations. All operating and financial decision making, including wholesale rate setting, typically resides with the representative board of directors.

#### Wholesale Contracts Dictate Obligations

Wholesale power system revenues are primarily derived from power sales contracts with participant or member retail systems. The terms, tenor and nature of the contract obligations (i.e. take-and-pay, take-or-pay) are a key factor when rating wholesale systems. Without such contracts, these wholesale suppliers are unlikely to be rated investment grade.

#### Purchaser Credit Quality Supports Rating

The credit quality of the purchasing utilities is an important rating factor for wholesale systems, as the corresponding payments enable issuers to meet their obligations on a timely basis. The degree to which the rating of a wholesale supplier is influenced by the credit quality of any individual purchaser (or subset of purchasers) is generally determined by the specific terms of the contract and the nature of the obligation.

#### Exceptional Operating Characteristics Could Enhance Rating

Exceptionally strong operating performance and/or resource economics could potentially enhance a wholesale power supplier's rating, particularly for single resource projects, above the level that the credit quality of the purchasers would otherwise indicate. However, such instances are rare.

### Wholesale Metrics Comparably Weaker

Wholesale suppliers typically exhibit comparably weaker financial metrics to retail power systems. However, weaker debt service coverage, higher leverage and lower cash on hand are generally acceptable given the credit quality, liquidity and strong contractual obligations of the member systems.

### Wholesale Public Power Ratings in Context

U.S. wholesale public power utilities are generally owned by the customers they serve and operate with a mission to provide essential, reliable and relatively low-cost power supply. Wholesale suppliers do not typically provide retail electric service. Fitch's average rating for wholesale public power systems in the sector is higher than the Issuer Default Ratings (IDRs) for independent power producers (IPPs).

Key credit characteristics supporting higher ratings for public wholesale utilities include their strong wholesale power supply contracts, self-rate regulating authority and lower consolidated enterprise risk relative to IPPs. Comprehensive supply contracts protect suppliers from operating risk and market price volatility, while self-rate regulating authority allows for the more timely recovery of costs through wholesale electric rates. These two factors provide for more stable energy sales and, in turn, more predictable financial operations. Efforts to diversify operations or compete in the competitive marketplace are rare in the public power sector.

### Power Supply

The supply requirements of wholesale power entities typically vary and are generally characterized as all-requirements or partial-requirements. All-requirements arrangements obligate both the supplier to supply all of the purchasing entities energy and capacity needs, and the purchaser to purchase all of their requirements from the supplier. Partial requirements arrangements typically obligate the supplier to supply only a portion of a purchaser's needs. The amount supplied may be limited to the capacity and energy available from identified resources, or requirements in excess of other resources available to the purchaser.

Resources used to meet wholesale supply obligations also vary, ranging from broad, sizable asset portfolios to single-asset power projects. Fitch evaluates all power supply resources based in accordance with the criteria outlined in this report.

### Governance

Most wholesale suppliers are governed by a board of directors composed of representatives from all or a subset of the members they serve. While it may not always ensure the adoption of robust financial policies and strong credit quality, Fitch believes member-governance aligns the incentives of the supplier and purchaser, thereby strengthening their related obligations. Wholesale suppliers governed by politically appointed boards of directors, including many state and federally owned suppliers, may be subject to greater political influence.

Fitch seeks to understand the dynamics among wholesale suppliers and their members, as well as those among the members, to determine whether the strategies and vision adopted by these entities are widely consistent and shared. Although occasional disagreement among members is anticipated by Fitch, organizational discord that detracts from strategic and financial planning is a concern.

### Power Supply Contracts

Wholesale power systems derive most of their revenues from power sales contracts with their participants or member retail systems. These power contracts and the nature of the related obligations are significant drivers of wholesale public power supplier credit ratings. Absent acceptable long-term contracts — many of which are court validated to provide assurances they are enforceable — a wholesale supplier would be unlikely to obtain an investment-grade rating.

Fitch reviews relevant power sales contracts to understand the nature of the related obligations and to assess the terms. Contract obligations are typically characterized as take-and-pay or take-or-pay. The details of each contract and its implications are discussed below.

Although suppliers may sell excess power and energy to nonmembers or into organized markets to maximize operating margins and reduce net energy costs, a heavy reliance on off-system sales is viewed as a negative credit factor, as revenues tend to be more volatile.

### Take-and-Pay Contracts

Under take-and-pay contracts, a purchaser's payment obligation is not unconditional, but contingent upon the delivery of electricity. Take-and-pay obligations are most often associated with all-requirements contracts, where participating retail electric systems are required to purchase all energy and capacity needs from the wholesale supplier. Power requirements are largely met through supplier-owned generation or long-term power purchase agreements. However, contract provisions typically provide that suppliers may procure power supply from alternative resources as necessary, mitigating operational and performance risk, as well as the risk of the take-and-pay obligation.

Fitch expects all requirements suppliers will be required to set rates sufficient to meet debt service requirements. Rates must therefore be adjusted to account for nonpayment by a member system or the failure of a major generating unit. This provides an implicit (or explicit) unlimited step-up requirement for participating systems, which Fitch views as strongly supportive of supplier credit quality.

### Take-or-Pay Contracts

Take-or-pay contracts are typically used to finance individual power projects, which are expected to provide only a portion of the purchaser's power requirements. Under these contracts, purchasers are obligated to make specified payments to the supplier, whether or not energy is delivered by the project, thereby eliminating operating risk. Mandatory payment obligations are usually sized to adequately cover the supplier's debt service requirements.

Take-or-pay project participants are typically obligated to pay a fixed percentage of the project's costs, including debt service, which corresponds to their allocated ownership interest or percentage of output. A supplier's ability to meet its obligations, including debt service, therefore depends on each participant meeting its required payment.

As a means of mitigating nonpayment by weaker and smaller participants, most take-or-pay contracts include step-up provisions, which require participants to increase their payments by a specified percentage in the event of another participant default. Step-up requirements can range from 20% to more than 100% of a participant's initial obligation.

Although participant defaults are rare, the inclusion and size of required step-up provisions in power sales contracts provide meaningful bondholder protection and are an important rating factor.

In reviewing wholesale suppliers, Fitch also evaluates the expiration and renewal terms of power sales contracts relative to the final maturity of an issuer's outstanding bonds. Debt maturities beyond the terms of the agreements are considered a negative rating factor, given the uncertainty of sufficient revenue to meet debt service post expiration. In these cases, Fitch will evaluate the likelihood of contract renewal, as well as the viability of the assets or enterprise to generate alternative revenue sufficient to meet debt service. Resource economics and flexibility, and prevailing market conditions are important factors in this determination.

### Purchaser Credit Quality

The credit quality of the purchasing utilities is an important consideration when rating wholesale power systems, because the corresponding payments enable the systems to meet their obligations on a full and timely basis. The ability and willingness of purchasers to make their required payments must therefore be considered.

The degree to which a supplier's rating is influenced by the credit quality of any individual purchaser (or subset of purchasers) is determined by the specific terms of the contract and the nature of the obligation. Ratings for all-requirements wholesale suppliers are generally less sensitive to the credit quality of individual purchasers. Instead, the ratings broadly reflect the credit quality of the pool, or its largest purchasers, given the default protection provided by unlimited step-up provisions.

By comparison, ratings for suppliers subject to take-or-pay contracts with limited step-up provisions are more sensitive to individual purchaser credit quality. Fitch evaluates structural and step-up provisions to determine the extent to which payments from each purchaser are required to meet a supplier's debt service. The rating for a take-or-pay supplier will generally reflect the credit quality of the weakest purchaser after factoring the applicable step-up provision.

Where a step-up provision is insufficient to cover an individual purchaser's obligations if it were to default, the supplier's rating may be capped by the credit quality of that purchaser. For example, if a supplier's step-up is limited to 25%, then that supplier's ability to meet debt service obligations would be highly reliant on payments from any purchaser with an allocated share higher than 20%. Stepping up the required payments from the remaining systems responsible for less than 80% of the project costs by 25% would likely result in a shortfall in revenue.

If a supplier is highly reliant on more than one purchaser (i.e. each purchaser has an allocated share of more than 20% in the case above), then the supplier's rating may be capped by the credit quality of the weakest of those purchasers.

Although reserve funds or funds received from the sale of output from a defaulting participant's share could be used to avert an immediate default on the supplier's debt obligations, the long-term rating reflects the likelihood of payment through final maturity.

### Assessing Purchaser Credit Quality

Fitch seeks to assess the credit quality of purchasing or member utilities using all available information, including public and private disclosure. In the absence of a Fitch public rating of a

purchasing system, Fitch may assign its own credit opinion, consider ratings of the local government or other related enterprises, refer to ratings from other nationally recognized credit rating agencies, or rely on comparative peer metric reviews in determining credit quality.

**Project Operating Characteristics**

In addition to the contract and purchaser evaluations described, Fitch evaluates project operating characteristics in accordance with the criteria outlined in this report when rating take-or-pay power projects. Although rare, exceptionally strong project operating performance and/or economics could potentially enhance the rating of a project above the level the purchaser evaluation would otherwise suggest. Any rating enhancement would likely be limited and would reflect Fitch’s determination that the obligations of the weakest purchaser would likely be assumed upon a default, given the inherent value of the resource and the incentive of the remaining purchasers to preserve the project’s credit quality.

Conversely, poor operating characteristics would not necessarily result in a project rating lower than purchaser credit quality would suggest. Fitch’s analysis assumes valid and binding take-or-pay obligations will be paid as required and any financial strain related to a poor-performing project would be separately reflected in the credit quality of the purchasers.

**Financial Metrics — Wholesale Systems**

Wholesale suppliers exhibit financial metrics that are comparably weaker to retail power systems for a given rating level, particularly take-or-pay projects where debt service coverage averages 1.0x–1.1x and cash balances held by the issuer are very limited. Overall weaker debt service coverage, higher leverage, and lower cash on hand reflect the higher asset concentration and related leverage characteristic of wholesale suppliers and are generally acceptable, given the credit quality and strong contractual obligations of the member systems.

Fitch also considers a wholesale system’s cost structure, rate adjustment and billing processes to assess the timeliness of cost recovery as part of its metric review. Wholesale suppliers typically pass through costs to members on a monthly basis, which enhances cash flow stability and further supports system metrics.

**Attributes: Select Financial Metrics — Wholesale Systems**

Debt Service Coverage (x)	Debt/FADS (x)	Days Cash on Hand	Equity/Capitalization (%)
<b>Stronger</b>			
Coverage of consistently more than 1.5x provides solid cash flow and bondholder protection.	Less than 7x debt to FADS indicates a favorable level of leverage relative to cash flow.	More than 120 days cash on hand indicates solid financial flexibility to meet unforeseen spending needs.	Strong equity levels of more than 30% indicate adequate cost recovery and ample debt capacity for future capital needs.
<b>Midrange</b>			
Many utilities target coverage in the 1.2x–1.4x range.	Ratios in the 7.0x–9.0x range indicate a generally balanced level of debt relative to cash flow.	Many wholesale systems target approximately 60–90 days operating cash.	Most wholesale systems maintain 20%–30% equity levels.
<b>Weaker</b>			
Consistently less than 1.1x coverage provides limited cushion for unexpected revenue shortfalls.	Greater than 10x debt without a suitable rationale can indicate a deficient rate structure.	Less than 60 days cash indicates less financial flexibility, but can be adequate if a system is subject to less cash flow volatility.	Less than 10% equity is relatively low for wholesale systems and may suggest limited capacity for additional debt.

FADS – Funds available for debt service. Note: Excludes take-or-pay projects. The debt and equity ratios above do not reflect off-balance sheet obligations. Fitch reviews adjusted financial ratios to take into account such obligations.



## Appendix B — Retail Public Power Systems

This criteria appendix provides additional guidelines for rating municipally and cooperatively owned retail power systems, a subset of the U.S. Public Power sector. Most of the key factors considered in rating public power entities are the same. However, different functional characteristics of the sector's participants sometimes result in unique credit considerations and financial metrics that are less comparable for a given rating level. This appendix will elaborate on those characteristics and how they influence Fitch's approach to rating retail power systems.

### Key Highlights

#### Retail Electric Services Provided

Retail public power systems provide electric supply and distribution services to end-user customers, and include both municipally and cooperatively owned systems.

#### Local Governance

Most retail systems are locally governed by an independent board of directors appointed or elected from among its end-user customers or member owners. All operating and financial decision making, including retail rate setting, typically resides with the representative board of directors.

#### Local Government Influence Assessed

Municipal systems sometimes operate as a component of the local government and may be governed by politically appointed boards or elected city councils. As part of its analysis, Fitch seeks to identify and assess the degree of political influence on utility operations and the degree to which utility credit quality could be influenced by local government decision making.

#### Power Supply Arrangements Vary

Retail systems meet their power supply requirements through a variety of arrangements. Some systems, typically larger entities, own and operate generating facilities to meet system power demands, while others receive all-requirements contractual power supply through membership in municipal JAAs or G&T cooperatives. Still others actively manage their power supplies through a combination of owned assets, take-or-pay projects, and bilateral contracts.

#### Financial Metrics Diverge with Asset Ownership

Financial metrics diverge widely with asset ownership and related borrowings. Fully integrated systems that generate their own power supply and have financed production facilities on-balance sheet typically report lower debt service coverage and higher leverage metrics than systems that contract for power supply.

#### Metrics Adjusted for Contractual Obligations

When rating retail public power systems, Fitch factors contractual debt obligations in its analysis, particularly those issued by JAAs and G&Ts on behalf of its member systems. Financial metrics are adjusted for off-balance sheet obligations as appropriate to facilitate peer comparison.

### Retail Public Power Ratings in Context

U.S. retail public power systems include municipally or cooperatively owned enterprises that operate with a mission to provide essential, reliable and relatively low-cost electric service to end users. Fitch's ratings for retail public power systems are typically higher than the IDRs of investor-owned utilities.

Key credit characteristics supporting higher ratings for public systems include their self-rate regulating authority, predominantly residential customer bases and lower consolidated enterprise risk. Self-regulating authority allows for the more timely recovery of costs through electric rates, while higher proportions of residential customers provide for more stable energy sales and, in turn, more predictable financial operations. Efforts to diversify operations in the public power sector are rare.

### Retail Services

Retail public power systems are distinguished by the transmission and delivery of electricity to end users, including residential, commercial and industrial customers. Municipal power systems are typically owned by the municipality the utility serves, and may operate as a stand-alone entity or as an enterprise fund of the local government. Moreover, municipal electric systems may be operated as part of a combined utility system providing other services, including natural gas, water and wastewater on a retail basis.

Electric distribution cooperatives provide electric distribution services to their end-user customers or owner members, typically within prescribed and largely rural territories. Alternative services may also be provided by distribution cooperatives, but instances are rare.

Fitch views the distribution function largely as a monopoly-type, stable business with limited business risk. Combined utility systems are viewed favorably — provided the individual systems are self-sustaining — given the diversity of revenue and economies of scale. However, retail systems that provide services subject to competitive pressures, including telecommunications and propane, may be exposed to a higher degree of operating and financial risk.

### Governance

Most retail systems are locally governed by an independent board of directors appointed or elected from among its end-user customers or member owners. All operating and financial decision making, including retail rate setting, typically resides with the representative board of directors. Governing boards that include highly engaged directors with diverse and relevant professional experience, and operate free from political influence are viewed more favorably by Fitch.

Fitch seeks to identify and assess the degree of political influence on municipal utility operations and the degree to which utility credit quality could be influenced by local government decision making. Municipal systems governed by politically appointed boards or elected city councils that are unfamiliar with the utility sector introduce political interference into decision making or rate-setting policies are generally of greater concern to Fitch. The involvement of influential consumer councils in rate setting can further limit financial flexibility. Conversely, local governments with ambitious and well-funded economic development programs could be highly supportive of retail power systems.

Fitch reviews transfers by a utility to a corresponding municipality's general fund and other means of financial support, including in-kind services and borrowing arrangements, as part of its analysis. Transfer policies that are formulaic or subject to limitation are viewed positively; whereas subjective, open-ended policies that allow a local government to affect the liquidity levels of a utility generally increase credit risk. For electric cooperatives, policies related to the repatriation (or return) of patronage capital to members have similar importance.

### Power Supply Arrangements

Some retail systems, typically larger entities, own and operate generating facilities to meet system power demands. Fitch's analysis of these vertically integrated systems includes an evaluation of all power supply resources and the related business risks in accordance with the criteria outlined in this report.

Most retail power systems receive all-requirements contractual power supply through membership in a JAA or G&T cooperative. Membership in these organizations is generally viewed positively by Fitch, particularly for smaller systems, as they provide greater economies of scale and diversification of resources vis-à-vis asset ownership.

Other retail systems choose to actively manage their power supplies through portfolios that may include owned assets, take-or-pay power supply arrangements and bilateral contracts. An organization's ability and sophistication to manage and effectively hedge the risks related to this strategy, either alone or with third-party experts, is a rating factor.

### Financial Metrics — Retail Systems

Financial metrics diverge widely with asset ownership and associated borrowings. Fully integrated systems that generate their own power supply and have financed production facilities on-balance sheet will typically report lower debt service coverage and higher leverage metrics than systems that contract for power supply.

When rating retail public power systems, Fitch factors contractual debt obligations in its analysis, particularly those issued by JAAs and G&Ts on behalf of its member systems and supported by power sales contracts. Fitch reviews all relevant power sales contracts to understand the nature of the related obligations and to assess the terms.

Contract obligations are typically characterized as take-and-pay or take-or-pay. Although a purchaser's payment obligation is not unconditional under a take-and-pay contract, as it is under a take-or-pay contract, Fitch does not generally distinguish between the obligations, as take-and-pay contract provisions typically mitigate performance risk. See the *Power Supply Contracts* section in Appendix A.

In addition to calculating standard financial ratios for retail systems, adjusted ratios that take into account off-balance sheet obligations, including those related to purchased power, are also calculated to facilitate peer comparison between retail systems that own generation versus purchase power. Further adjustments are made to measure coverage of charges Fitch deems as fixed for retail systems, including general fund transfers. These adjusted ratios include coverage of full obligations and are discussed in greater detail on page 8 of this report.



Public Finance

Attributes: Select Financial Metrics — Retail Systems

Debt Service Coverage (x)	Coverage of Full Obligations (x)	Debt/FADS (x)	Days Cash on Hand	Equity/Capitalization (%)
<b>Stronger</b>				
Coverage of consistently more than 2.0x provides solid cash flow and bondholder protection.	Coverage of consistently more than 1.5x provides solid cash flow and bondholder protection.	Less than 6x debt to FADS indicates a favorable level of leverage relative to cash flow.	More than 120 days cash on hand indicates solid financial flexibility to meet unforeseen spending needs.	Strong equity levels of more than 50% indicate adequate cost recovery and ample debt capacity for future capital needs.
<b>Midrange</b>				
Many utilities target coverage in the 1.5x–2.0x range.	Many utilities target coverage in the 1.2x–1.5x range.	Ratios in the 6.0x–8.0x range indicate a generally balanced level of debt relative to cash flow.	Many retail systems target approximately 60–120 days operating cash.	Most retail systems maintain 30%–50% equity levels.
<b>Weaker</b>				
Consistently less than 1.5x coverage provides limited cushion for unexpected revenue shortfalls.	Consistently less than 1.2x coverage provides limited cushion for unexpected revenue shortfalls.	Greater than 8x debt without a suitable rationale can indicate a deficient rate structure.	Less than 60 days cash indicates less financial flexibility, but can be adequate if a system is subject to less cash flow volatility.	Less than 30% equity is relatively low for retail systems and may suggest limited capacity for additional debt.
FADS – Funds available for debt service. Note: The debt and equity ratios above do not reflect off-balance sheet obligations. Fitch reviews adjusted financial ratios including coverage of full obligations to take into account such obligations.				

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## Fitch Rates Tennessee Valley Authority's Global Power Bonds 'AAA'; Outlook Stable

September 21, 2015 11:41 AM Eastern Daylight Time

NEW YORK--(BUSINESS WIRE)--Fitch Ratings has assigned an 'AAA' rating to the following Tennessee Valley Authority's (TVA) bonds:

--Approximately \$1 billion global power bonds 2015 series A.

The 2015 series A bonds are expected to price on September 21. Proceeds will be used to refinance outstanding TVA debt and provide funds for ongoing capital investments.

The Rating Outlook is Stable.

### SECURITY:

TVA's global power bonds are secured by net revenues of TVA's power system.

### KEY RATING DRIVERS:

**IMPLICIT GOVERNMENTAL SUPPORT:** The 'AAA' rating assigned to TVA's outstanding global power bonds reflects its status as a wholly owned corporation of the U.S. Government and Fitch's expectation that repayment of the power bonds would ultimately receive the support of the U.S. Government in the event of fiscal distress.

**COMPETITIVE WHOLESALE ELECTRIC SUPPLIER:** TVA has an increasingly diverse resource portfolio, which provides competitively priced wholesale electricity to a population of more than nine million spanning an exceptionally large and diverse region.

**RING-FENCED SERVICE TERRITORY:** The Federal Energy Regulatory Commission (FERC) is prevented, pursuant to the Federal Power Act's anti-cherry-picking provision, from requiring TVA to provide open-access to its transmission lines for the purpose of serving TVA customers. This provision in essence significantly reduces TVA's risk of customer loss.

**TIMELY COST RECOVERY:** TVA is required, pursuant to the TVA Act of 1933 (the Act), to set rates sufficient to cover operating and maintenance costs and all other obligations, including debt service and payments to the U.S. Treasury. An automatic fuel cost adjustment made each month ensures the timely recapture of fuel costs.

**SUBJECT TO DEBT LIMIT:** Given the authority's sizeable capital needs, long-term borrowing capacity remains a credit concern as TVA continues to approach a \$30 billion debt ceiling imposed by the Act. However, this concern continues to be partially mitigated by TVA's access to, and past use of, alternate financing that does not count against the limit.

### RATING SENSITIVITIES

**CHANGE IN U.S. SOVEREIGN RATING:** Any change in the credit rating of the U.S. sovereign would likely result in a comparable change in the rating on Tennessee Valley's power revenue bonds.

## CREDIT PROFILE:

### LARGE REGIONAL WHOLESAL SYSTEM

TVA operates the nation's largest public power system, selling power on a wholesale basis to 155 municipal and cooperative distribution systems spanning an exceptionally large and diverse service area that includes portions of Tennessee, Alabama, Mississippi, Kentucky, Georgia, North Carolina and Virginia. TVA operates as a fully self-supporting enterprise fund supported entirely from the sale of electricity and power system financings.

### SATISFACTORY FINANCIAL RESULTS

Energy sales decreased again in fiscal 2014, although the 2.4% decline was less pronounced than the nearly 5% decrease incorporated into TVA's originally adopted budget. The positive variance in sales relative to the budget coupled with a modest rate increase prompted a favorable increase in funds available for debt service (FADS). The stronger cash flow, together with significantly lower annual debt service costs, resulted in Fitch-calculated debt service coverage of 2.62x.

Available cash reserves remain low for the rating category, but the inclusion of multiple lines of credit provides sufficient resources relative to TVA's operating needs. Unrestricted cash and investments at fiscal year-end 2014 together with a \$150 million credit facility with the U.S. Treasury and three long-term revolving credit facilities totaling \$2.5 billion provide a robust 166 days liquidity on hand.

Year-to-date results through the first nine months of the current fiscal year are positive compared to the same period in the prior year. Operating income is reported as up \$454 million, driven primarily by a 2.6% rate increase adopted at the outset of the current fiscal year and continued progress towards an initiative to reduce O&M costs by \$500 million.

### DEBT LIMITATION CURTAILS FLEXIBILITY

With nearly \$24 billion of debt outstanding at the close of fiscal 2014, TVA remains close to its \$30 billion debt limitation imposed under the Act. Consequently, various lease financings have been employed as a way to circumvent the current debt limitation while still continuing to finance the authority's ongoing capital program. Lease-purchase transactions are not subject to the Act's debt limitation.

The limitation placed on TVA's borrowing capacity remains a concern given its long-term capital needs exceed the remaining capacity under the debt limitation. Capital costs covering fiscals 2015-2017 are estimated at \$7.5 billion, the majority of which could be financed with long-term borrowings.

### WATTS BAR UNIT 2 CONSTRUCTION PROGRESSING

Fitch believes the near completion of TVA's Watts Bar Nuclear Plant's Unit 2 reactor remains a positive development. Project completion is slated for the latter part of 2015 with commercial operation expected in June 2016. The final cost remains unchanged, estimated to be within a range of \$4 billion-\$4.5 billion. Unit 2 appears likely to be granted an operating license in the near term by the Nuclear Regulatory Commission (NRC) following a recommendation by an advisory group to the NRC earlier this year. When online, the Unit will further diversify TVA's resource portfolio and provide 1,150 megawatts of carbon-free generating capacity.

Date of Relevant Committee: 22 April 2015

Additional information is available at '[www.fitchratings.com](http://www.fitchratings.com)'.

#### Applicable Criteria

Revenue-Supported Rating Criteria (pub. 16 Jun 2014)

[https://www.fitchratings.com/creditdesk/reports/report\\_frame.cfm?rpt\\_id=750012](https://www.fitchratings.com/creditdesk/reports/report_frame.cfm?rpt_id=750012)

U.S. Public Power Rating Criteria (pub. 18 May 2015)

[https://www.fitchratings.com/creditdesk/reports/report\\_frame.cfm?rpt\\_id=864007](https://www.fitchratings.com/creditdesk/reports/report_frame.cfm?rpt_id=864007)

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## Fitch Rates Long Island Power Authority Series 2016A/B Electric System Gen Revs 'A-'; Outlook Stable

August 24, 2016 11:22 AM Eastern Daylight Time

NEW YORK--(BUSINESS WIRE)--Fitch Ratings has assigned an 'A-' rating to the Long Island Power Authority's (LIPA) issuance of the following electric system general revenue bonds:

--\$175 million, series 2016A (MMD FRN Rate);

--\$414 million, series 2016B, fixed rate.

The series 2016A bonds are expected to be privately placed the week of Aug. 29, and proceeds will be used to repay the authority's outstanding series 2012C variable rate bonds. The series 2016B bonds are expected to be sold in September, and proceeds will be used primarily to fund capital improvements and refund certain fixed rate bonds.

Fitch has also affirmed the 'A-' ratings on the following LIPA debt and commercial paper bank notes:

--\$4 billion, senior lien electric system revenue and refunding bonds;

--implied electric system revenue subordinate obligations;

--\$200 million series 2014 CP-1A (federally taxable) and 1B;

--\$100 million series 2014 CP-2A (federally taxable) and 2B.

The Rating Outlook is Stable.

### SECURITY

The electric system general revenue bonds are senior lien obligations of LIPA secured by the net revenues of the electric system, after payment of operating and maintenance expenses. LIPA's subordinate lien general revenue obligations are also secured by the net revenues of the electric system, but are subordinate to payments on LIPA's outstanding senior lien electric revenue bonds and floating rate notes.

### KEY RATING DRIVERS

**SOLID UTILITY FUNDAMENTALS:** LIPA is one of the nation's largest municipal electric distribution systems, serving 1.1 million retail customers. The authority benefits from sound utility fundamentals, including a flexible power supply mix, an affluent and well-diversified customer base and cost recovery mechanisms that stabilize cash flow. A series of comprehensive operating agreements with capable external service providers further support operations.

**BUSINESS MODEL TRANSITION:** The 2013 LIPA Reform Act, enacted in response to operating challenges following Superstorm Sandy, broadened the responsibilities of the utility's system

operator (PSEGLI) and expanded the state's (Department of Public Service [DPS]) regulatory oversight of LIPA. Fitch views many of the legislated provisions as supportive of credit quality. However, added regulatory oversight could affect LIPA's financial and rate flexibility over time.

**CONSTRUCTIVE REGULATORY RECOMMENDATIONS:** The constructive recommendations submitted by the DPS following its initial review of LIPA's three-year rate plan, and adopted by the LIPA board, support LIPA's Stable Outlook. The authority implemented the first phase of a three-year rate increase on Jan. 1, 2016.

**RATE PRESSURES PERSIST:** Despite electric rates that have become more competitive regionally, political and consumer rate pressures persist as LIPA's average residential revenue per kilowatt hour (kwh) remains among the highest in the nation at approximately 19.4 cents/kwh.

**HIGH DEBT LEVELS:** LIPA's debt levels remain high, totaling \$10.2 billion at Dec. 31, 2015 including capital lease and securitization obligations, or \$9,337 per retail customer, well above the peer utility median of \$3,318. Although Fitch recognizes the benefits of the separately secured \$4.1 billion in securitized debt, the repayment profile remains an obligation and burden of current ratepayers. Positively, LIPA's three-year rate plan aims to reduce debt

financing of future capex to less than 64%, which should moderate future borrowings

**SOUND LIQUIDITY:** LIPA's liquidity was solid at 103 days of operating cash, and 202 days including available short-term notes and external bank facility at Dec. 31, 2015. Weaker metrics reported in recent years were affected by significant storm costs, but federal reimbursement of roughly 90% of the costs incurred is now complete.

#### RATING SENSITIVITIES

**IMPROVED OPERATING STABILITY:** Evidence of improved operating stability and financial performance at the Long Island Power Authority sufficient to offset persistent political and consumer-driven rate pressures could result in consideration of a positive rating action.

#### CREDIT PROFILE

LIPA owns one of the largest municipal electric distribution systems in the U.S., serving a population of about 3 million people located throughout Nassau and Suffolk counties, and the Rockaways section of New York City. The service area economy continues to exhibit well above average wealth and income levels. Unemployment in Nassau and Suffolk Counties (general obligations debt rated 'A'/Outlook Stable and 'A-'/Outlook Stable, respectively) is below that of the state and nation.

Operations and management services related to the LIPA transmission and distribution system, which had been provided by a subsidiary of National Grid plc, shifted to PSEG-LI, a subsidiary of Public Service Enterprise Group ([PSEG] Issuer Default Rating 'BBB+'/Stable) as of Jan. 1, 2014, for a 12-year term, pursuant to the operating services agreement (OSA). PSEG is paid a management fee and can earn performance incentives.

Effective Jan. 1, 2015, fuel management services shifted to an affiliate of PSEG - PSEG Energy Resources and Trade, LLC. The power supply and fuel management services are also provided pursuant to the OSA, which expires Dec. 31, 2025.

The power supply agreement remains with National Grid, plc, to provide capacity and energy from its oil and gas-fired generating units on Long Island. This agreement is in place through May 2028.

## NEW ISSUE DETAILS

The series 2016A proceeds will be used to refinance LIPA's outstanding series 2012C variable rate demand bonds and should not expose LIPA or its bondholders to any meaningful new risks. The series 2016A bonds will initially bear interest at a variable rate based on prevailing AAA Municipal Market Data General Obligation Yield Curve plus an applicable spread and will have a final maturity of May 1, 2033

In addition to the bond issuance, LIPA is also expected to enter into a five year basis swap that will effectively convert the cost of the series 2016A bonds to 69.4% of one-month LIBOR plus an applicable spread. There is an additional requirement at the end of the basis swap agreement for LIPA to pay the counterparty 100% of any decrease in the market value of the series 2016A bond. However LIPA reserves the right to call or remarket the bond after five years, in which case the value of the basis swap would be \$0.

The authority will continue to bear the interest rate risk associated with the series 2016A debt, but LIPA's overall variable rate exposure remained reasonable at 3.7% of total debt at year end 2015.

The series 2016 B bonds will bear interest at a fixed rate and have an expected final maturity of May 1, 2046.

For additional information on LIPA's long term ratings see the recent full rating report dated Feb. 18, 2016. The report and press release are available at '[www.fitchratings.com](http://www.fitchratings.com)'.

Additional information is available at '[www.fitchratings.com](http://www.fitchratings.com)'.

### Applicable Criteria

Revenue-Supported Rating Criteria (pub. 16 Jun 2014)

<https://www.fitchratings.com/site/re/750012>

U.S. Public Power Rating Criteria (pub. 18 May 2015)

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U.S. PUBLIC FINANCE



## CREDIT OPINION

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## Energy Northwest, WA

New Issue: Moody's assigns Aa1 to Energy Northwest's (ENW) CGS, Project 1 and Project 3 bonds. BPA's Aa1 affirmed. Outlook stable

### Summary Rating Rationale

Moody's Investors Service has assigned Aa1 ratings to Energy Northwest's (ENW) \$242 million of Project 1 Electric Revenue Refunding Bonds, Series 2017-A; \$194.4 million of Columbia Generating Station (CGS) Electric Revenue and Refunding Bonds, Series 2017-A; \$159.7 million of Project 3 Electric Revenue Refunding Bonds, Series 2017-A; \$525 thousand of Project 1 Electric Revenue Refunding Bonds, Series 2017-B (Taxable); \$3.3 million of Columbia Generating Station Electric Revenue and Refunding Bonds, Series 2017-B (Taxable); and \$905 thousand of Project 3 Electric Revenue Refunding Bonds, Series 2017-B (Taxable). These bonds are supported by net billing agreements with Bonneville Power Administration (BPA, Aa1/stable) and thus are rated the same as BPA's other supported obligations. Moody's also affirmed BPA's Aa1 issuer rating and BPA supported debt obligations. The rating outlook is stable.

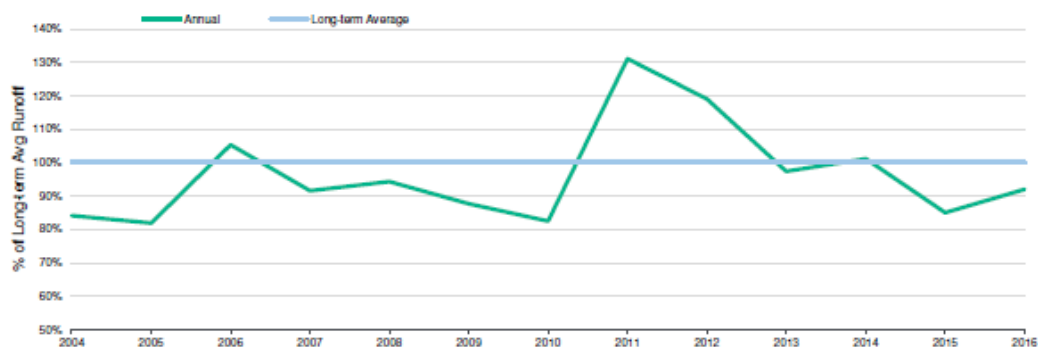
The Aa1 rating on Energy Northwest's (ENW) CGS, Project 1, and Project 3's revenue bonds reflect BPA's contractual obligation to pay including debt service under each project's net billing agreement, BPA's long history of meeting its contractual obligations, and BPA's Aa1 issuer rating.

BPA's Aa1 issuer rating reflects its credit strengths comprising of US Government (Aaa stable) support features, strong underlying hydro and transmission assets, very competitive power costs, and long-term power supply contracts with customers through 2028. Explicit US Government support features include borrowing authority with the US Treasury (\$2.9 billion available as of September 30, 2016) and the legal ability to defer its annual US Treasury debt repayment if necessary. BPA's importance to the US Northwest region and its role as a US government agency represent drivers of implicit support. US federal government's strong explicit and implicit support features are key credit strengths that support BPA's Aa1 rating even though BPA faces weaknesses outlined below.

BPA's rating also considers long-term credit challenges such as hydrology and wholesale market price risk, 'regulated utility' like ratemaking process, environmental burdens, and forward-looking consolidated financial metrics that range in the 'Ba' to 'A' category per Moody's U.S. Public Power Electric Utilities with Generation Ownership Exposure methodology. Hydrology and wholesale market prices are the greatest volatility drivers of BPA's financial performance and have been the main driver of BPA's declining internal liquidity over the last ten years. These factors are likely to persist owing to the volatility associated with hydro resources along with the weak wholesale power that exists in the

Pacific Northwest. Additionally, BPA's accelerated repayment of federal appropriations debt and declining availability under the US Treasury line are continuing factors that diminish the US government's explicit support features over time and weakens BPA's positioning within its Aa1 rating. After the FY2018-2019 rate period, the combination of declining US Treasury line availability, declining internal reserves for risk, sustained weak wholesale power market and a reduction in the degree of federal debt subordination could lead to negative rating action.

Exhibit 1  
Columbia River Runoff at Dalles



Source: Moody's Investors Service, BPA

**Credit Strengths**

- » U.S. government support through US Treasury borrowing line and federal debt service deferral ability
- » Regional importance as indirect power provider for 14 million people
- » Access to 22 GW of low cost, federally owned hydro system
- » Dominant electric transmission provider in the Pacific Northwest
- » Highly competitive rates
- » Long-term power sales contracts with creditworthy public power entities

**Credit Challenges**

- » 'Regulated utility' like ratemaking process
- » Significant exposure to hydrology risk and wholesale power markets
- » 'Ba' to 'A' category forecasted financial metrics
- » Federal debt subordination weakening
- » Declining reserves for risk and availability under US Treasury Line
- » Significant fish and wildlife environmental costs

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

### Rating Outlook

The stable outlook on the CGS, Project 1, and Project 3 revenue bonds reflects BPA's stable outlook. BPA's stable outlook considers BPA's FY 2018-19 proposed rates and BPA's plan to maintain sufficient availability under the US Treasury line through FY2019.

### Factors that Could Lead to an Upgrade

- » Ratings on the CGS, Project 1 and Project 3 revenue bonds could be upgraded if BPA is upgraded.
- » BPA's rating could improve over the long term if BPA is able to substantially mitigate hydrology and wholesale price risk and if BPA implements policies to ensure strong internal reserves for risk resulting in at least 250 days cash on hand on a sustainable basis.

### Factors that Could Lead to a Downgrade

- » Ratings on the CGS, Project 1 and Project 3 revenue bonds could be downgraded if BPA is downgraded or if the underlying net billing agreement is violated or weakened.
- » BPA's ratings could be lowered if the US government's credit rating is downgraded, if we expect internal liquidity to fall below 60 days or availability under the US Treasury line declines below \$1.5 billion on a sustained basis, or BPA experiences regulatory delays in receiving full recovery of costs. Other factors that could lead to a downgrade include any sign of waning federal government support or decline in the proportion of subordinated, deferrable debt owed to the US Treasury beyond actions currently planned.

### Key Indicators

Exhibit 2

	2012	2013	2014	2015	2016
Total Sales (MWh)	94,774,440	87,547,440	89,325,720	81,599,400	84,463,920
Debt Outstanding (\$' 000)	14,534,245	15,013,366	15,571,590	16,089,851	15,641,400
Debt ratio (%)	96.6%	95.7%	95.7%	94.5%	90.5%
Total Days Cash on Hand (days)	132	117	136	152	103
Total Debt Service Coverage Ratio (x) (Post Transfer/PILOTs - All Debt)	1.11	1.05	1.19	1.17	0.57
Non-Federal Debt Service Coverage Ratio (x) (Post Transfers/PILOTs - Non-Federal Debt)	2.07	1.70	3.46	4.34	3.77

Source: Moody's Investors Service, BPA

### Recent Developments

In November 2016, BPA proposed rates for FY2018-2019, which would increase power rates by an average of 3.5% and transmission rates by 1.1% for the two year period. The BPA administrator will finalize the rates in July 2017 and final rates will go into effect on October 1st, 2017 subject to FERC approval.

As part of FY2018-2019 rates, BPA has proposed a reserves policy which targets 90 days cash on hand (based on reserves for risk) for each line of business with a minimum of 60 days cash on hand. If liquidity is below the minimum at the start of the year, a surcharge would trigger subject to a 3% cap. Liquidity above 120 days cash on hand would be credited back to customers, used to reduce debt or fund capex. Implementation of a reserve policy would be credit positive since BPA's reserves for risk have served as BPA's frontline cushion against underperformance and has dropped steeply since 2008. That said, we see the proposed policy as primarily seeking to maintain current reserve levels since BPA had around 100 days cash on hand at FY2016.

For FY 2016, BPA faced another year of below average hydrology conditions at around 92% of average. This was exacerbated by the need to refill reservoirs at the Canadian hydro dams in FY 2016. BPA previously drew down on available reservoir storage in FY2015 to offset low hydrology conditions. BPA's 'reserves for risk' serves as the primary buffer against any underperformance and it dropped to \$602 million in FY 2016 (\$845 million in FY 2015). For FY 2017, BPA reported in its Q1 quarterly business review that reserves for risk are forecasted to further drop to \$395 million primarily due to lower power and transmission sales and higher than expected operating



costs. BPA's rapid decline in its reserves for risk is a credit negative and an inability to ensure internal reserves at or near current levels could lead to a negative rating action.

### Detailed Rating Considerations

#### Revenue Generating Base

##### Major Power and Transmission Provider to the Pacific Northwest

BPA derives its revenues from the sale of power and transmission services from its dominant hydroelectric generation and electric transmission assets in the Pacific Northwest. BPA has roughly 75% of the Pacific Northwest's bulk electric transmission consisting of 15,000 miles of high voltage transmission lines and 260 substations and other facilities located in BPA's service area. Additionally, BPA's power supply represents roughly one third of the total regional power supply and consists of 22 GW of mostly federally owned hydro plants, the 1.1 GW CGS nuclear plant, and market and contract purchases. The federal hydro projects also serve numerous purposes, including irrigation, navigation, recreation, municipal and industrial water supply, and fish and wildlife protection.

Power sales represent the largest portion at typically 75% of total revenue and the majority of these sales are made under long-term power sales contracts (Preference Contracts) maturing in 2028 with 133 municipally owned utilities, cooperatively owned utilities, and federal agencies. Sales to these customers totaled approximately \$2 billion in FY 2016 and represent BPA's largest revenue segment at nearly 60% of total revenues. Snohomish County P.U.D. 1, WA Electric Ent. (Aa3/stable) is BPA's largest preference customer at 10% of power sales in FY 2016. Power rates charged by BPA are highly competitive and BPA's average tier 1 rate for FY 2016 was \$35.63/MWh.

Electric transmission sales are BPA's second largest revenue source at \$947 million in revenues in FY 2016. BPA's top transmission customer is Puget Sound Energy Inc (Baa1 stable) at 12% each of transmission revenue in FY 2016.

Exhibit 3

Power Customer Name	Type	Rating	% of Power Sales	Transmission Customer Name	Rating	% of Transmission Sales
Snohomish County P.U.D. 1, WA Electric Ent.	Preference	Aa3	10%	Puget Sound Energy, Inc.	Baa1	12%
Cowlitz County Public Utility District 1, WA	Preference	A1	7%	PacifiCorp	A3	11%
Seattle (City of) WA Electric Enterprise	Preference	Aa2	7%	Portland General Electric Company	A3	9%
Pacific Northwest Generating Coop	Preference	NR	6%	Powerex Corp.*	NR	7%
Tacoma Power, WA	Preference	Aa3	5%	Seattle (City of) WA Electric Enterprise	Aa2	5%
Clark County Public Utility District 1, WA	Preference	A1	4%	Iberdrola Renewables Inc.	Baa1	5%
Eugene Water & Electric Board, OR	Preference	Aa2	3%	Snohomish County P.U.D. 1, WA Electric Ent.	Aa3	4%
Benton County Public Utility District 1, WA	Preference	Aa3	2%	Pacific Northwest Generating Coop	NR	2%
Flathead Electric Cooperative, Inc.	Preference	NR	2%	Hermiston Power LLC	NR	2%
Central Lincoln Peoples Utility District, OR	Preference	NR	2%	Clark County Public Utility District 1, WA	A1	2%
Total			48%	Total		69%

\*Subsidiary of British Columbia Hydro & Power Authority (Aaa)  
Source: Moody's Investors Service, BPA

#### 'Regulated Utility' Like Rate Making Process Could Delay Timely Recovery

Unlike a traditional public power utility, BPA's ratemaking procedure for power and transmission rates charged to its customers involves an extensive process that shares similarities with a rate regulated utility that often create complications and delays in timely and full recovery of BPA's costs. The Northwest Power Act contains specific ratemaking procedures for BPA, mandates justification and reasons in support of such rates, and requires a hearing. The BPA Administrator ultimately decides the power and transmission rates based on the hearing record including all information submitted. Rates established by BPA are subject to approval by FERC. Currently,

BPA has rate cases every two years. In a stress situation, BPA could file an expedited rate with FERC and the whole process could take several months for an interim rate approval. We see BPA's rate setting process as materially weaker than peers such as Tennessee Valley Authority (Aaa stable) that have unfettered, self-regulated rate setting.

Notwithstanding the 'regulated utility' like ratemaking process that BPA operates under, we recognize that BPA has raised rates in difficult situations such as the power crisis of 2000-2001 when BPA raised rates by 46%. Additionally, within a rate period, BPA is able to charge up to an additional \$300 million per year starting at the beginning of the fiscal year under the Cost Recovery Adjustment Clause (CRAC) if Power Service's accumulated net revenue is below a set level that is equivalent to reserves for risk at zero balance. A separate NFB Adjustment for certain environmental costs can raise the \$300 million CRAC limit. While the CRAC mechanism adds some flexibility to BPA's two-year rate periods, the annual basis of the test and low trigger point limit the benefit of the CRAC mechanism.

A credit supportive rate setting tool is BPA's use of its treasury payment probability tool whereby BPA proposes rates at levels that it can meet its US Treasury payments at a 95% confidence level based on its cash flows and reserves. BPA's approach should ensure a high probability of near-term payments to the US Treasury and an extremely high probability of near-term timely payments on non-federal debt service, which is effectively senior to the debt owed to the US Treasury.

#### **Regional Hydrology and Wholesale Price Risk Are BPA's Biggest Volatility Drivers**

BPA's financial results can be materially impacted by hydrology in the Columbia River Basin and wholesale power prices since market based power sales can represent roughly 10-15% of total revenues. Since 2001, hydrology has been very volatile with high and low around 130% and 60%, respectively, of the long-term average. Similarly, power prices have also been volatile with a recent peak nearing \$60/MWh in 2008 and a low below \$20/MWh in 2012. These factors, which are outside of BPA's control, have contributed heavily to periods of underperformance and represent BPA's biggest driver of cash flow volatility since power sales under long-term contracts and transmission sales are much more stable and predictable. Moreover, wholesale power revenues have, in the past, provided a source of cash flow for funding capital expenditures at BPA. In light of the sustained weak power markets, BPA has been more reliant on the borrowing authority with the US Treasury (currently at \$2.9 billion). The volatility of wholesale revenues emphasizes the importance of maintaining significant internal liquidity especially at BPA's rating level.

#### **Operational and Financial Performance**

##### **Environmental Costs Are Material**

BPA faces conflicting uses of the Columbia River and environmental regulations, such as the Endangered Species Act (ESA), that contributes significantly to BPA's costs and weighs heavily on BPA's cash flows. Biological opinions prepared by National Oceanic and Atmospheric Administration Fisheries Service and the US Fish and Wildlife Service mandate actions to protect fish species resulting in direct costs such as hatcheries and indirect loss of revenue from hydro dam operational changes. For FY2016, BPA estimates total fish and wildlife costs at approximately \$622 million consisting of \$495 million in direct costs and \$127 million of indirect costs. BPA was able to recover the non-power related environmental costs totaling \$77 million from the US Treasury in FY 2016. While BPA's fish and wildlife mitigation costs are considerable, BPA's federally and non-federally owned generation are emissions free since they consist of hydro and nuclear generation. As such, BPA remains insulated against new federal regulations including those for greenhouse gases and BPA could benefit if new emissions regulations increase the market price of power.

##### **Financial Metrics Are Low for the Rating**

On a fully consolidated basis including federal debt, BPA's financial metrics are commensurate with Ba to A category scoring on a historic basis. Total DSCR has averaged around 1.0x over the last three years, which is commensurate with a 'Ba' scoring, while BPA's debt ratio is high at an average of 95% which is commensurate with a 'Ba' scoring. Looking forward, BPA's sets rates to achieve around 1.0x DSCR; however, actual performance can deviate especially if hydrology and market prices are different than expectations. Separately, non-federal DSCR have risen to almost 3.8x since principal payments for CGS, Project 1, and Project 3 have been pushed out to the future resulting in an interest only coverage ratio for non-federal DSCR.

**LIQUIDITY**

For FY 2016, BPA had reserves for risk, a measure of internal liquidity, totaling \$602 million (103 days cash on hand), which is commensurate with the low end of the 'A' scoring. Below average hydrology, the need to replenish reservoirs, and lower than expected power prices were major drivers of the liquidity drop versus the \$845 million (152 days cash on hand) at year-end FY 2015. For FY 2017, BPA expects its reserves for risk to decline to \$395 million mainly due to lower power and transmission sales and higher operating costs.

As part of its current rate case, BPA proposed a reserve policy that targets 90 day cash on hand with a surcharge if reserves for risk drop below 60 days cash on hand. Implementation of a reserve policy would be credit positive since BPA's reserves for risk have served as BPA's frontline cushion when underperformance occurs and has dropped steeply since 2008. That said, we see the proposed policy as primarily seeking to maintain current reserve levels since BPA had little over 100 days cash on hand at FY2016.

Supplementing BPA's internal liquidity is a \$750 million borrowing sublimit under the US Treasury line that can be used to fund operating expenses. This line of credit is renewed on an ongoing basis and any draw needs to be repaid within one year.

**Debt and Other Liabilities****DEBT STRUCTURE**

BPA's \$15.6 billion in total debt consists of \$8.5 billion of non-federal debt and \$7.2 billion of federal debt, which is debt owed by BPA to the federal government. BPA's non-federal debt are debt like contractual obligations such as BPA's obligation to CGS, Project 1, and Project 3 under the net billing agreements. In addition to the net billing agreements, BPA has non-federal debt through leases, power prepay, and other take-or-pay contractual obligations. Since these obligations are treated as an operating expense of BPA, they have priority over BPA's direct debt obligation to the US Treasury and BPA can defer payments to US Treasury, if necessary. This deferral ability provides BPA a major source of financial flexibility under extreme situations though BPA has not deferred such payments since 1983 and any deferral is likely to have significant negative political ramifications. The significantly higher non-federal DSCR previously described above also highlights the substantial benefits of the federal debt's effective subordination to non-federal debt and these benefits are supportive of the Aa1 rating on CGS, Project 1, and Project 3.

We see BPA's Regional Cooperation Debt (RCD) program as undermining the benefits of the federal debt's subordination, since the program results in a substantial extension of non-federal debt in exchange for the accelerated repayment of federal appropriations debt. While we recognize the cost savings benefits for this strategy, Energy Northwest's debt funding of interest and O&M expenses to accelerate repayment of federal appropriations debt further undermines the subordination and is credit negative.

**DEBT-RELATED DERIVATIVES**

BPA indirectly has interest rate derivative like exposure of around \$1 billion mostly tied to its lease financed transmission assets. We understand there are no collateral posting requirements under any conditions for these derivatives.

**PENSIONS AND OPEB**

BPA employees are part of the US government's post-retirement benefit programs for all federal civil employees. The post-retirement benefits are overseen by the United States Office of Personnel Management (OPM), an independent agency that manages the civil service of the federal government. As such, BPA does not record any accumulated plan assets or liabilities related to the administration of a retirement plan.

**Management and Governance****US Government Support is a Major Strength**

While BPA's obligations do not benefit from the full faith and credit of the United States Government, BPA benefits from significant explicit and implicit support elements from the US Government. The key support elements consist of BPA's borrowing line (\$2.9 billion available) with the US Treasury and ability to defer payments to the US Treasury. That said, BPA forecasts the US Treasury line availability shrinking over time which we see as weakening a key support element and could become a driver of future negative rating action.

A strong qualitative consideration for implicit support include BPA's role as a line agency of the US Department of Energy. As a line agency of the US DOE, the BPA Administrator reports to the US Secretary of Energy and BPA has numerous linkages with other federal

agencies. For example, the US Army Corp of Engineers and the US Bureau of Reclamation own and operate the federal dams while BPA markets the power output and pays for all of the associated operating and capital costs.

Importance to the US Northwest region is another key qualitative factor. BPA is responsible for certain treaty responsibilities with Canada regarding the federally owned dams, significant regional environmental protection programs, and coordination of river operations. Northwest US representation on key US House and Senate committees that deal with energy legislation is a credit strength.

Overall, we see these explicit and implicit US support as providing a multi-notch lift to BPA's standalone credit quality and represent key considerations for BPA's Aa1 rating. In a major stress scenario, Moody's expects any US Government support to BPA is likely to be provided through the established US Treasury credit line or deferral of payments to the US Treasury.

### Legal Security

CGS, Project 1, and Project 3's bonds are secured by a pledge of specific project revenues primarily sourced under substantially similar tri-party net billing agreements with BPA and project participants for each project. The Project 3's pledge is subordinate to \$29.2 million of prior lien bonds. The revenues for each project are not cross collateralized. There are no debt service reserves.

The net billing agreements obligate the project participants, consisting of numerous municipal and cooperative electric utilities, to pay ENW their proportionate share of the project's annual costs, including debt service, irrespective of whether the project is operable or terminated. BPA, in turn, is obligated to pay (or credit) the participants identical amounts by reducing the amounts the participants owe for power and service purchased from BPA under their power-sales agreements. BPA has also agreed, in the event of any insufficient payment by a participant, to pay the amount due in cash directly to the project. In 2007, Energy Northwest and BPA adopted a new direct pay agreement whereby Energy Northwest participants directly pay all costs to BPA rather than through Energy Northwest. BPA has made a clear and tested commitment to support the payment under the net billing through more than more than 30 years of stressful circumstances including legal challenges in the early 1980s.

### Use of Proceeds

Approximately \$97 million of CGS's bond proceeds will be used to fund capital spending. Remaining funds for CGS, Project 1, and Project 3 will be used primarily to extend bond maturities per its Regional Cooperation Debt program. As part of the Regional Cooperation Debt program, BPA expects to accelerate repayment of defacto subordinated federal appropriations debt in conjunction with the CGS, Project 1, and Project 3 debt maturity extensions.

### Obligor Profile

BPA was created in 1937 by an act of the US Congress and is one of four regional power marketing agencies within the US Department of Energy. BPA is primarily responsible for federally owned generation and electric transmission assets in the Pacific Northwest spanning all or parts of eight states. The Army Corps of Engineers and the Bureau of Reclamation own and operate the hydro projects. Many of the statutory authorities of BPA are vested with the Secretary of Energy, who appoints and acts through the BPA administrator. BPA's obligations are not backed by the full faith and credit of the US government and its cash payments are limited to funds available in the Bonneville Fund.

### Other Considerations: Mapping to The Grid

Moody's evaluates BPA's issuer rating under the US Public Power Electric Utilities with Generation Ownership Exposure methodology, and the grid indicated rating is Aa2, which is lower than its Aa1 assigned rating. BPA's close linkages with the federal government as a federal agency are the supportive considerations for the Aa1 assigned rating as compared to the Aa2 indicated rating under the US Public Power with Generation Ownership methodology.

Moody's also evaluates CGS, Project 1, and Project 3 ratings under the US Municipal Joint Action Agencies methodology, and the grid indicated rating is Aa1 for CGS and Baa1 for Project 1 and Project 3. The Aa1 rating assigned to all three projects reflects BPA's contractual obligation to pay including debt service under each project's net billing agreement, BPA's long history of meeting its contractual obligations, and BPA's Aa1 issuer rating.

The grid is a reference tool that can be used to approximate credit profiles in the US public power industry in most cases. However, the grid is a summary that does not include every rating consideration. Please see U.S. Public Power Electric Utilities with Generation Ownership Exposure and US Municipal Joint Action Agencies for more information about the limitations inherent to grids.

Exhibit 4  
BPA Methodology Scorecard

Factor	Subfactor	Score	Metric
1. Cost Recovery Framework Within Service Territory		Aa	
2. Willingness and Ability to Recover Costs with Sound Financial Metrics		A	
3. Generation and Power Procurement Risk Exposure		Aa	
4. Competitiveness	Rate Competitiveness	Aa	
5. Financial Strength and Liquidity	a) Adjusted days liquidity on hand (3-year avg) (days)	A	130
	b) Debt ratio (3-year avg) (%)	Ba	94%
	c) Adjusted Debt Service Coverage or Fixed Obligation Charge Coverage (3-year avg) (x)	Ba	1.0x
<b>Preliminary Grid Indicated rating from Grid factors 1-5</b>		<b>A2</b>	
		<b>Notch</b>	
6. Operational Considerations		1.0	
7. Debt Structure and Reserves		1.5	
8. Revenue Stability and Diversity		0.0	
<b>Grid Indicated Rating:</b>		<b>Aa2</b>	

Source: Moody's Investors Service

**MOODY'S INVESTORS SERVICE** **U.S. PUBLIC FINANCE**

Exhibit 5  
**ENW CGS Methodology Scorecard**

Factor	Subfactor/Description	Score	Metric
1. Participant Credit Quality and Cost Recovery Framework	a) Participant credit quality. Cost recovery structure and governance	Aa1	
2. Asset Quality	a) Asset diversity, complexity and history	Baa	
3. Competitiveness	a) Cost competitiveness relative to market	Baa	
4. Financial Strength and Liquidity	a) Adjusted days liquidity on hand (3-year avg) (days)	Baa	49
	b) Debt ratio (3-year avg) (%)	Baa	130%
	c) Fixed obligation charge coverage ratio (3-year avg) (x)	Baa	1.06x
Material Asset Event Risk	Does agency have event risk?	No	
<b>Notching Factors</b>		<b>Notch</b>	
	1 - Contractual Structure and Legal Environment	0	
	2- Participant Diversity and Concentration	0	
	3 - Construction Risk	0	
	4 - Debt Service Reserve, Debt Structure and Financial Engineering	0	
	5 - Unmitigated Exposure to Wholesale Power Markets	0	
<b>Scorecard Indicated Rating:</b>		<b>Aa1</b>	

Source: Moody's Investors Service

**MOODY'S INVESTORS SERVICE** **U.S. PUBLIC FINANCE**

Exhibit 6  
ENW Project's 1 and 3 Methodology Scorecard

Factor	Subfactor/Description	Score	Metric
1. Participant Credit Quality and Cost Recovery Framework	a) Participant credit quality, Cost recovery structure and governance	Aa1	
2. Asset Quality	a) Asset diversity, complexity and history	B	
3. Competitiveness	a) Cost competitiveness relative to market	B	
4. Financial Strength and Liquidity	a) Adjusted days liquidity on hand (3-year avg) (days)	Baa	
	b) Debt ratio (3-year avg) (%)	B	
	c) Fixed obligation charge coverage ratio (3-year avg) (x)	B	
Material Asset Event Risk	Does agency have event risk?	No	
<b>Notching Factors</b>		<b>Notch</b>	
	1 - Contractual Structure and Legal Environment	0	
	2 - Participant Diversity and Concentration	0	
	3 - Construction Risk	0	
	4 - Debt Service Reserve, Debt Structure and Financial Engineering	0	
	5 - Unmitigated Exposure to Wholesale Power Markets	0	
<b>Scorecard Indicated Rating:</b>		<b>Baa1</b>	

Source: Moody's Investors Service

**Methodology**

The principal methodology used in this rating was US Public Power Electric Utilities With Generation Ownership Exposure published in March 2016. An additional methodology used in this rating was US Municipal Joint Action Agencies published in October 2016. Please see the Rating Methodologies page on [www.moody's.com](http://www.moody's.com) for a copy of these methodologies.

## Ratings

Exhibit 10

### Energy Northwest, WA

Issue	Rating
Project 3 Electric Revenue Refunding Bonds, Series 2017-A	Aa1
Rating Type	Underlying LT
Sale Amount	\$159,705,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise
Project 3 Electric Revenue Refunding Bonds, Series 2017-B (Taxable)	Aa1
Rating Type	Underlying LT
Sale Amount	\$905,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise
Columbia Generating Station Electric Revenue and Refunding Bonds, Series 2017-A	Aa1
Rating Type	Underlying LT
Sale Amount	\$194,360,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise
Columbia Generating Station Electric Revenue and Refunding Bonds, Series 2017-B (Taxable)	Aa1
Rating Type	Underlying LT
Sale Amount	\$3,285,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise
Project 1 Electric Revenue Refunding Bonds, Series 2017-A	Aa1
Rating Type	Underlying LT
Sale Amount	\$241,990,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise
Project 1 Electric Revenue Refunding Bonds, Series 2017-B (Taxable)	Aa1
Rating Type	Underlying LT
Sale Amount	\$525,000
Expected Sale Date	04/12/2017
Rating Description	Revenue: Government Enterprise

Source: Moody's Investors Service



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## Rating Action: Moody's assigns Aaa rating to TVA's \$1 billion bond offering; stable outlook

Global Credit Research - 21 Sep 2015

New York, September 21, 2015 -- Moody's Investors Service today assigned an Aaa rating to Tennessee Valley Authority's (TVA) \$1 billion Global Power Bonds 2015 Series A Due 2065. TVA's outlook is stable.

Proceeds from the bond offering will be used to pay down short-term debt and for general corporate purposes. TVA had approximately \$2.6 billion in short-term debt outstanding as of June 30, 2015.

### RATINGS RATIONALE

"TVA's Aaa senior unsecured rating considers several attributes unique to TVA, including federal ownership, legislation that provides protection from competition and the statutory authority of TVA's Board to set rates", said Scott Solomon, Moody's Senior Credit Officer. "These attributes, combined with TVA's size, scale, and economic importance within the Tennessee Valley, translate into a more predictable and stable financial profile relative to all other public power and investor owned utilities" added Solomon.

Challenges confronting TVA include a decline in electric demand and a significant capital spending program driven by the replacement of coal-fired generating capacity in an effort to increase the company's power supply from reduced emitting resources.

To that end, TVA's Board approved the retirement of coal units at three plant sites with more than 3,000 megawatts of combined generating capacity. In addition, TVA is constructing two new combined-cycle gas plants: the 1,000 megawatt Paradise plant, which is expected to achieve commercial operation in 2017 and the 1,046 megawatt Allen Plant (2018), at an estimated cost of \$2.0 billion.

Combined with the anticipated commercial operation of Watts Bar Unit 2, a nuclear plant, in late 2015, TVA anticipates reducing the reliance on coal-fired generation from approximately 32% of total generation currently to approximately 22% by 2020 while increasing generation from gas-fired and nuclear generating assets to approximately 23% and 41%, respectively, from 19% and 35%, currently.

TVA's near-term projected capital expenditures is expected to exceed historical levels, which has averaged approximately \$2.2 billion annually over the past three periods. Specifically, expenditures are anticipated at approximately \$3.4 billion in fiscal year 2015 and \$2.4 billion in each of 2016 and 2017, and require a modest amount of external funding.

TVA's Aaa credit rating could be downgraded if there are any limitations placed on the independence of TVA including its ability or willingness to set rates at sufficient levels to cover operating expenses and debt service requirements, or if there are any changes in law that negatively affect TVA's protected position in its service territory including permitting outside access through TVA's transmission lines. Also, the credit rating could be downgraded if TVA debt approaches its \$30 billion debt ceiling. Moreover, pressure on the U.S. government's credit rating or a reduction or reconfiguration of federal ties could also place pressure on TVA's rating.

For additional information on TVA, refer to the Credit Opinion dated August 11, 2015 which can be found on [moodys.com](http://moodys.com).

The principal methodology used in this rating was U.S. Public Power Electric Utilities with Generation Ownership Exposure published in November 2011. Please see the Credit Policy page on [www.moodys.com](http://www.moodys.com) for a copy of this methodology.

TVA is a wholly owned corporate agency and instrumentality of the United States, originally established by Congress in 1933 to develop the Tennessee Valley region. TVA is the largest public power system in the country, selling wholesale power to distributor customers including municipalities, cooperatives, and industrial customers in an 80,000 square mile region that covers most of the state of Tennessee, as well as parts of six other states.

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Ratings

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Bonneville Power Administration,  
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## Energy Northwest, Washington Bonneville Power Administration, Oregon; Wholesale Electric

Credit Profile		
US\$236.775 mil proj 1 elec rev rfdg bnds ser 2017-A due 07/01/2028		
<i>Long Term Rating</i>	AA-/Stable	New
US\$191.200 mil Columbia generating station elec rev and rfdg bnds ser 2017-A due 07/01/2034		
<i>Long Term Rating</i>	AA-/Stable	New
US\$156.975 mil proj 3 elec rev rfdg bnds (Bonneville Pwr Admin) ser 2017-A due 07/01/2028		
<i>Long Term Rating</i>	AA-/Stable	New
US\$3.790 mil Columbia generating station elec rev and rfdg bnds (Taxable) ser 2017-B due 07/01/2034		
<i>Long Term Rating</i>	AA-/Stable	New
US\$1.660 mil proj 1 elec rev rfdg bnds (Bonneville Pwr Admin) (Taxable) ser 2017-B due 07/01/2028		
<i>Long Term Rating</i>	AA-/Stable	New
US\$1.645 mil proj 3 elec rev rfdg bnds (Bonneville Pwr Admin) (Taxable) ser 2017-B due 07/01/2028		
<i>Long Term Rating</i>	AA-/Stable	New

### Rationale

S&P Global Ratings has assigned its 'AA-' rating to six series of \$592 million of proposed Energy Northwest (ENW), Wash., bonds. Bonneville Power Administration (BPA), Ore., will pay the bonds' debt service as operating expenses of its electric system.

The bonds include the following series:

- Project 1 electric revenue refunding bonds, series 2017-A;
- Columbia Generating Station (CGS) electric revenue and refunding bonds, series 2017-A;
- Project 3 electric revenue refunding bonds, series 2017-A;
- Project 1 electric revenue refunding bonds, series 2017-B (taxable);
- CGS electric revenue and refunding bonds, series 2017-B taxable); and
- Project 3 electric revenue refunding bonds, series 2017-B (taxable).

At the same time, S&P Global Ratings affirmed its 'AA-' ratings on existing parity and prior-lien ENW debt and additional nonfederal obligations that BPA pays as an operating expense of its electric system. The outlook is stable. S&P Global Ratings also affirmed its 'aa-' stand-alone credit profile on BPA.

Although the series project 3 bonds are subordinate ENW obligations, the utility covenanted to close its prior liens. The \$29 million of project 3 prior-lien debt represents less than 1% of the \$8 billion of nonfederal debt that BPA supports. In light of the modest amount of project 3 bonds, we do not view the subordinate-lien position as an additional exposure. ENW has retired its prior-lien CGS and project 1 debt.

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CGS is ENW's only completed and operating nuclear unit. The incomplete nuclear units 1 and 3 have \$1.9 billion of debt and the operating CGS nuclear unit has \$3.4 billion.

ENW and BPA will use the bonds' proceeds to refund portions of ENW's existing debt and finance a portion of CGS's capital improvement needs. Bonneville has been using ENW refunding transactions to capture debt service savings and to defer portions of its ENW debt to free up funds to retire portions of higher interest federal appropriation debt more quickly and preserve Treasury borrowing capacity, which is subject to a cap.

At fiscal year-end 2016 (Sept. 30), Bonneville had \$15.6 billion of debt obligations, consisting of \$2.9 billion of federal appropriations, \$4.8 billion of bonds issued to the U.S. Treasury, and \$8.0 billion of nonfederal debt that the utility supports. BPA's financial statements include \$2.1 billion of lease obligations and \$285 million of customer power prepayments in its nonfederal debt. It pays nonfederal debt from net revenues before it services federal Treasury debt and appropriations.

Accelerating portions of high interest rate federal appropriations debt by using the cash flow that re-amortizing ENW debt through refunding transactions frees up should reduce interest expense. As federal debt is retired, funds that would have been applied to its principal will then be available to further accelerate portions of BPA's Treasury debt, which is critical to funding Bonneville's capital program. The utility operates under a congressionally imposed \$7.7 billion ceiling on its Treasury borrowings. Although as of fiscal year-end 2016, \$4.8 billion of Treasury bonds were outstanding, the utility's reports that capital spending needs could exhaust the remaining Treasury borrowing capacity by as soon as 2019. Debt extensions have reduced federal appropriations debt to \$2.9 billion in 2016 from \$4.3 billion in 2013 and Treasury debt rose modestly to \$4.8 billion in 2016 up from \$3.9 billion in 2013.

BPA expects that managing Treasury debt balances with the savings from ENW debt deferrals will alleviate its borrowing constraints and add years to its Treasury borrowing capacity. Bonneville labels its use of ENW debt extensions to reduce appropriations and Treasury debt, "Regional Cooperation Debt Refinancings." To further these plans, it expects more than \$2 billion of additional transactions to extend debt beyond the approximately \$1.2 billion of debt extensions since 2014.

The 'AA-' ratings on ENW's debt and the other nonfederal debt that BPA supports reflect Bonneville's contractual obligations to support the debt and the application of our government-related entities (GRE) criteria. We assess Bonneville's stand-alone credit profile to be 'aa-' and believe there is a moderately high likelihood that the U.S. government would provide extraordinary support to it in financial distress. We base the latter on our opinion of the strong link between the BPA and the federal government, as well as the important federal role the agency plays in the Pacific Northwest. However, after downgrading the U.S. to 'AA+' from 'AAA' in August 2011, we no longer view the U.S. government's sovereign credit profile as lifting the ratings of the nonfederal obligations that BPA supports above the utility's stand-alone credit profile.

The GRE rating reflects our view of:

- Bonneville's status as a federal agency;
- The ongoing financial support the federal government provides to the agency through long-term loans and credit lines;

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- Legislation that allows BPA to defer repayments of federal obligations if in financial distress; and
- The utility's important contributions to the Pacific Northwest's economy, where it indirectly serves a population of about 12 million in eight states, provides low-cost power that is critical to the region's economic health, and operates key transmission resources.

Bonneville's stand-alone credit profile reflects our assessment of the following factors:

- The federal government provides ongoing support to BPA through loans and credit lines.
- Congress increased the agency's federal borrowing authority in 2009 to \$7.70 billion, up \$3.25 billion (or 73%). However, Bonneville projects that, by 2019, it could consume the headroom between its \$4.8 billion of U.S. Treasury borrowings and \$7.7 billion as it proceeds with capital spending.
- Nonfederal bondholders benefit from the legislative mechanism that allows BPA to pay nonfederal debt as an operating expense ahead of federal debt service and to defer repaying federal obligations if it lacks the financial resources to meet all of its operating and debt obligations.
- The utility's financial performance includes a track record of at least 1.8x nonfederal accrual debt service coverage (DSC) in fiscal years 2010-2016, tempered by accrual coverage of federal and nonfederal obligations of 1.0x in 2011 and 2013, 0.9x in 2012, and 0.7x in 2016. Coverage was 1.2x in 2014 and 1.3x in 2015. The years with low coverage reflect the influence of biennial rate cases without intraperiod adjustments and the utility's operational exposure to variable hydrology conditions that affect volumes of surplus power available for sale in competitive markets, prevailing market power prices when BPA makes surplus sales, and variations in renewable energy resources' output that affect market prices. In addition, the accelerated payment of appropriations debt heavily influenced 2016's DSC. Bonneville paid \$1.04 billion of appropriations debt in 2016, compared with an average of less than \$200 million in the prior five years.
- BPA exhibits robust liquidity, which tempers the sometimes substantial impacts of variable hydrology conditions on financial performance and mitigates credit risks inherent in biennial rate cases. For example, in 2016, unrestricted cash and investments dropped to \$853 million from \$1.3 billion in the preceding year, but remained at a level that, at four months' operating expenses, we consider strong.
- An exceptionally broad and diverse service territory supports the revenue stream.
- The strong, efficient, and economical operations of the federal hydroelectric Columbia River Power System translates into favorable wholesale power prices that foster strong demand for its output and ENW's nuclear production.
- Customers demonstrated their commitment to the agency's system by entering contracts with BPA that extend from 2008-2028. However, the contracts do not establish rates and the utility continues to rely on biennial rate proceedings.
- Tiered rates underlying the customer contracts help shield BPA from market volatility by assigning to customers the costs of their energy needs that exceed their allotments of capacity from the federal hydroelectric projects and CGS.

S&P Global Ratings also incorporates the following factors in its assessment:

- Financial performance hinges on hydrology conditions that can impair surplus power sales revenues and require replacement power purchases that add to expenses. The liquidity cushion is vulnerable to hydrology conditions, power market volatility, and accelerated debt reduction, as the nearly \$500 million decline in 2016's unrestricted cash and investments relative to 2015 illustrated. Biennial rate proceedings and the high threshold for triggering the utility's cost recovery adjustment mechanism limit the flexibility to respond to pressures on liquidity and DSC.
- Highly politicized and protracted biennial rate proceedings can delay rate relief and constrain the benefits of autonomous ratemaking authority and financial flexibility. Nevertheless, the utility established electric rates for its municipal and electric cooperative customers for fiscals 2016-2017 that at \$34 per megawatt-hour are 7.1% above

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its 2014-2015 rates and transmission rates that were 4.4% higher. Rates during 2014-2015 that were 9% higher than the rates that went into effect in October 2013 and transmission rates were 11% higher. In addition, BPA is exploring rate increases for the 2018-2019 rate period.

- Bonneville and ENW project substantial capital needs that could add to both organizations' debt and consume BPA's Treasury borrowing authority. The utility reports it is exploring nonfederal financing arrangements, including leases and energy prepayments by its customers, to address expectations that it could soon exhaust its federal borrowing capacity. BPA's capital spending program is important to maintaining the integrity of its generation fleet and managing forced outage incidents.
- The \$7.7 billion federal debt limit includes \$750 million carved out as a credit line, which leaves about \$2.15 billion of capacity based on \$4.8 billion of existing Treasury debt.
- The success of the Regional Cooperation debt refinancings and the ability to extend the tenor of BPA's capacity to borrow from Treasury hinge on the economics of refinancing opportunities for reamortizing nonfederal debt, the willingness of ENW to serve as a conduit issuer, and the potential for accelerating portions of Bonneville's federal appropriations and Treasury debt.
- The Regional Cooperation debt refinancings will strengthen nonfederal DSC in the near term, but will likely erode DSC in later years because BPA and ENW are deferring nonfederal debt service.

## Outlook

The stable outlook reflects our view that Bonneville's stand-alone credit profile can withstand a further downgrade on the U.S. Also, plans to increase rates for the 2018-2019 period could help support DSC and liquidity. At the same time, ENW's willingness to serve as a conduit to capital markets remains important to managing Treasury borrowing limits.

### Upside scenario

We do not expect to raise the ratings in the next two years because of the size of the BPA and ENW capital programs and our view that improvements in nonfederal debt service coverage ratios reflect the deferral of debt amortization to later years to address the Treasury's cap on BPA's borrowings

### Downside scenario

If, during our two-year outlook horizon, Bonneville's sound liquidity cushion erodes further whether due to hydrology conditions, capital needs, weak market for its surplus power, or debt acceleration that saps its liquidity, we could lower the stand-alone credit profile. Also, if BPA adds significant nonfederal leverage obligations because of its statutory debt ceiling, it could lead to negative implications for the stand-alone credit profile and the 'AA-' rating.

## Bonneville's Nonfederal Debt Obligations

BPA's nonfederal rated obligations include:

- \$5.3 billion of ENW revenue and refunding bonds: \$3.4 billion relates to the operating CGS and the balance is for the incomplete units 1 and 3;
- \$78.9 million of Public Utility District No. 1 of Lewis County, Wash., Cowlitz Falls Project bonds;
- \$119.6 million of Northwest Infrastructure Financing Corp. (Schultz-Wautoma project) bonds; and
- \$12.8 million of Northern Wasco Public Utility District, Ore. (McNary Dam Project) bonds.

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## Operations

Bonneville markets electricity generated at 31 federal hydroelectric projects, ENW's nonfederal nuclear CGS, and several nonfederal small power plants. It primarily markets these resources' output to the customers of 125 public power and electric cooperative utilities (88% of sales), federal agencies, direct service industries, and the residential and farm customers of six investor-owned utilities. BPA also operates an extensive transmission system that facilitates power marketing activities. Its transmission system represents about 75% of the Pacific Northwest's transmission capacity. Power sales accounted for 73% of 2016's operating revenues, compared to transmission's 27%.

ENW debt financed two partially completed nuclear reactors and one completed reactor, CGS, a 1,157 megawatt reactor. The nuclear assets' debt is the leading component of nonfederal obligations.

## Capital Spending Forecast

Bonneville projects about \$4.5 billion of 2017-2021 capital projects. In descending order, transmission projects, hydroelectric asset upkeep, facilities, IT, security, and fish and wildlife protection represent the largest segments of the capital program. We view investments in the hydroelectric assets as critical to cash flow, particularly because the generating assets have exhibited an above-average forced outage factor relative to the balance of the power industry.

ENW projects about \$537 million of 2017-2021 capital projects.

### Ratings Detail (As Of March 31, 2017)

#### Energy Northwest, Washington

Bonneville Pwr Admin, Oregon

Energy Northwest proj 1 Columbia generating station & proj 3 elec rev rfdg bnds (Bonneville Pwr Admin)

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest proj 1, Columbia Generating Sta, & proj 3 elec rfdg

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

*Unenhanced Rating* AA-(SPUR)/Stable Affirmed

Energy Northwest WHLELC

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

*Long Term Rating* AA-/Stable Affirmed

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*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

*Long Term Rating* AA-/Stable Affirmed

Energy Northwest WHLELC

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<b>Ratings Detail (As Of March 31, 2017) (cont.)</b>		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) elec rev rfdg bnds (Proj 1)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) Columbia generating station elec rev bnds		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) Columbia Generating Station elec rev & rfdg bnds (Bonneville Pwr Admin)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) Sub Lien		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) (Nuclear Proj 1,2,3)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Energy Northwest (Bonneville Pwr Admin) (1,Columbia,3)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
<b>Bonneville Pwr Admin elec rev rfdg (Colu)</b>		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
<b>Energy Northwest (Bonneville Pwr Admin)</b>		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
<b>Energy Northwest (Bonneville Pwr Admin) (XL Capital Assurance Inc.)</b>		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
<b>Washington Pub Pwr Supp Sys (Nuclear Proj #3) rfdg rev bnds ser 93C dtd 9/23/93 due 7/1/2013 2014 2015 2017(CUSIP #939830RW7 RY3 RX5 RZ0)</b>		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
<b>Northern Wasco Cnty Peoples Util Dist, Oregon</b>		
Bonneville Pwr Admin, Oregon		
Northern Wasco Cnty Peoples Util Dist (Bonneville Pwr Admin) rev rfdg bnds (McNary Dam Fishway Hydroelec Proj)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Northern Wasco Cnty Peoples Util Dist (Bonneville Pwr Admin) (McNary Dam Fishway Hydroelec Proj)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
<b>Northwest Infrastructure Financing Corp., New York</b>		
Bonneville Pwr Admin, Oregon		
Northwest Infrastructure Financing Corp. (Bonneville Pwr Admin) TRANS		
<i>Long Term Rating</i>	AA-/Stable	Affirmed

Many issues are enhanced by bond insurance.

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**MARCH 31, 2017 8**

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## Appendix F – MPA Utilities Practice Overview

Morrison Park Advisors has deep experience in the utility sector, including electricity generation, transmission and distribution, as well as natural gas pipelines and distribution utilities. Both as a firm, and as individuals with prior experience, we have worked with many of the leading utilities in Canada helping them to understand and maximize the value of assets and opportunities, whether for the purpose of mergers and acquisitions, new development and construction, or balance sheet management. Given our expertise, we are often called upon to provide clients with advice in challenging situations that do not fit typical investment banking categories.

### Morrison Park Advisors

- Independent, partner-owned investment banking firm established in 2005
- Co-founded by David Santangeli and Brent Walker, now ten professionals, with over one hundred successful assignments with public and private companies, governments and quasi-public entities
- Value proposition is a unique combination of Tier 1 investment banking capabilities, comprehensive scope of expertise, and excellent client value
- Integrated advisory practice, covering all facets of investment banking, capital markets and Mergers & Acquisition services

### Utilities Services

- Mergers & Acquisitions
- Strategic advice on market consolidation; potential investors & partners
- Financial advice on balance sheet management, growth capital, dividend policies
- Valuation
- Regulatory reviews and expert witness testimony in legal disputes

## Utilities Reference Assignments

- Manitoba Hydro Public Utilities Board: Consultant to the Board and Expert Witness on Manitoba Hydro's Needs For and Alternatives To Proposed Business Plan
- Nova Scotia Utilities Review Board: Consultant to the Board and Expert Witness on the review of the proposed Maritime Link transmission project to connect Nova Scotia with Newfoundland and Labrador Hydro
- Alberta Electric System Operator (AESO): capital markets view on Alberta electricity investing, interview of developers/owners/operators of electricity generation facilities, as well as capital providers and other capital markets participants
- Market Surveillance Administrator of Alberta: Analysis of electricity generation investment sustainability in Alberta based on market participant interviews and financial information
- Crown Investments Corporation of Saskatchewan: advice on the cost and commercial viability of a nuclear electricity generation plant in Saskatchewan.
- BC Hydro: strategic advice on market value and potential partnerships for new international and interprovincial transmission infrastructure
- City of London, Ontario: review of the value of and strategic opportunities for ownership of London Hydro
- PowerStream: financial advisor to PowerStream in its merger with Enersource Hydro and Horizon Utilities, with concurrent acquisition of Hydro One Brampton Networks, Inc., to create the new company Alectra Utilities
- City of Toronto: M&A advisor to the City of Toronto in the sale of its minority shareholding in Enwave, a district heating and cooling company in Toronto
- Altagas Utilities: independent valuation of distribution utilities for the special committee of the Board of Directors
- Oshawa PUC: advice to the Board with respect to potential merger, acquisition and sale opportunities
- Milton Hydro: advice to the Board and the special advisory committee to City Council with respect to the recapitalization of Milton Hydro, its dividend policy, and potential merger, acquisition and sale opportunities
- Enwin Utilities: strategic and financial advice on balance sheet management of electricity and water utility businesses, and advice on options available to the Board with respect to potential merger, acquisition and sales
- Haldimand Hydro: advice to the Board with respect to potential merger, acquisition and sale opportunities
- Woodstock Hydro: advice to the Board with respect to potential merger, acquisition and sale opportunities
- Hydro One: financial advisor for distribution industry consolidation from 2007 to 2009; completed valuations for more than 30 utilities; conducted negotiations; strategic advisory services in managing acquisition proposals

### **Sample Previous Experience of MPA Staff**

- Hydro One: Directed acquisitions of Haldimand Hydro, Norfolk Power, Woodstock Hydro, and Terrace Bay Superior Wires, in addition to numerous discussions and negotiations with respect to potential transactions with electricity distributors across the province
- Province of Ontario: Development of provincial policies with respect to electricity distribution consolidation
- Province of Nova Scotia: Financial advisor to the Province on the sale of its interest in Nova Scotia Resources Limited
- Ontario Teachers, OMERS and SNC Lavalin: Advisor to consortium on the potential acquisition of 49% of Hydro One
- Fortis Inc.: M&A advisor on the \$1.4 B acquisition of Alberta and BC electricity distribution assets formerly owned by Aquila Networks
- Newfoundland & Labrador Hydro: advisor on proposed privatization
- Advisor to a bidding consortium on the proposed acquisition of ENMAX, the electricity distributor of the City of Calgary

### Appendix G – Summary of Relevant Experience

	Regulated Utility	Non-Regulated Utility	Generation	Transmission	Distribution	Sale Process	Fairness Opinion	Other	MPA Team Members
<b>MPA Assignments</b>									
City of London, Ontario: Review of London Hydro	X				X			X	Pelino Colaiacovo, Bill Meeker
PowerStream: Merger, Purchase and creation of Alectra	x				x	x	x		Pelino Colaiacovo
City of Toronto: Sale of Enwave		x				x	x		Pelino Colaiacovo
Altgas Utilities	x				x	x	x		Brent Walker
Oshawa Hydro	x				x			x	Pelino Colaiacovo, Brent Walker
Milton Hydro	x				x			x	Pelino Colaiacovo, Brent Walker
Enwin Utilities	x				x			x	Pelino Colaiacovo
Haldimand Hydro	x				x			x	Pelino Colaiacovo
Woodstock Hydro	x				x			x	Pelino Colaiacovo, Brent Walker
Hydro One	x				x			x	Pelino Colaiacovo, Brent Walker
Alberta Electric System Operator		x	x					x	Pelino Colaiacovo, Brent Walker
Manitoba Hydro	x		x	x			x		Pelino Colaiacovo, Ben Kinder
Nova Scotia Utilities and Review Board	x			x			x		Pelino Colaiacovo, Brent Walker, Ben Kinder
Market Surveillance Administrator of Alberta		x	x					x	Pelino Colaiacovo, Brent Walker
Crown Investments Corporation of Saskatchewan		x	x					x	Brent Walker
BC Hydro	x			x				x	Pelino Colaiacovo, Brent Walker
<b>Prior Assignments of MPA Staff</b>									
Hydro One acquisition of Haldimand, Norfolk, Woodstock distributors	x				x	x			Bill Meeker
Province of Ontario distribution consolidation policy	x				x			x	Pelino Colaiacovo
Province of Nova Scotia: sale of interest in Nova Scotia Resources		x				x	x		Brent Walker
Advisor to consortium for potential acquisition of Hydro One	x			x	x	x			Brent Walker
Fortis Inc. acquisition of Aquila Networks assets in BC and Alberta	x				x	x	x		Brent Walker
NALCOR: advisor on proposed privatization	x		x	x		x			Brent Walker
Advisor to consortium on proposed acquisition of ENMAX	x				x	x			Brent Walker



## Appendix H – MPA Utilities Team

### **Pelino Colaiacovo**

Pelino is a Managing Director at MPA. In this role he is responsible for origination and transaction execution, financial advisory and capital raising services. Since joining MPA Pelino has focused on advising clients in the energy, utilities, infrastructure and public sectors, and in addition assists clients in cleantech industry.

Utility clients have included Hydro One, BC Hydro, Enwin Utilities, Oakville Hydro, Woodstock Hydro, the Nova Scotia Utilities Review Board, the Alberta Market Surveillance Administrator, and numerous others, and more broadly in the energy sector Pelino has worked on a number of M&A and capital raising assignments for renewable energy and cleantech companies.

Prior to joining MPA in 2005, Pelino was Chief of Staff to the Ontario Minister of Energy from 2003 to 2005. During that time, he assisted in significant restructuring of the Ontario electricity sector, including the drafting and implementation of new legislation, the creation of the Ontario Power Authority, and significant procurements of new electricity generation capacity for the province.

Previously, Pelino spent more than 10 years in management, policy and communications consulting in Canada and the United States, advising clients across a wide range of sectors, including energy, transportation, telecommunications, and healthcare.

Pelino holds a B.A. and an L.L.B., both from the University of Toronto.

**Bill Meeker**

Bill is a Senior Advisor at Morrison Park Advisors. Since joining MPA in 2014, Bill has focused exclusively on the utility sector. Bill brings over thirty years of utility experience with Ontario Hydro, Ontario Hydro International and Hydro One Inc. to helping clients understand and meet the challenges of today's utility environment.

Bill's career has focused on transaction development in the electric distribution and transmission businesses – both internationally and in Ontario. He has led cross-functional teams in due diligence, valuation, execution and regulatory approvals. Bill's experience includes directing the acquisition of assets and shares, the sale of strategic investments, structuring complex cross-border partnerships, managing investment partnerships, and structuring merger arrangements.

Bill also led Hydro One's asset management function for electric distribution for two years from 2010 to 2012. From 2012 to 2014 Bill led Hydro One's acquisition of Norfolk Power, Haldimand County Hydro, and Woodstock Hydro.

Bill has a Bachelor of Business Administration (B.B.A.) and Master of Business Administration (M.B.A.) from York University's Schulich School of Business.

**Brent Walker**

Brent Walker is a Managing Director and co-founder of MPA. In this role he is responsible for transaction origination and execution, financial advisory and capital raising activities across a wide spectrum of industry segments, including energy, technology, government and quasi-government entities and a variety of other commercial sectors.

Utility clients have included BC Hydro, Altagas Utilities, Crown Investments Corporation, Hydro One, Market Surveillance Administrator of Alberta, the Nova Scotia Utilities Review Board, the Ontario Ministry of Energy and many others.

Prior to founding MPA in 2004, Brent spent over 10 years in the investment banking and financial industry. From 1996 to 2004, he was a managing director in Scotia Capital's mergers and acquisitions department, where he was the most senior M&A banker in a number of sectors including power and infrastructure, pipelines, energy midstream and real estate. During this period, he worked on the sale of the Province of Nova Scotia's interest in Nova Scotia Resources Limited, the acquisition of Aquila by Fortis, the proposed privatization of NALCOR and Enmax, and many other utility assignments.

Brent started his investment banking career at Lancaster Financial, Canada's foremost independent M&A boutique which was acquired by TD Bank in 1994.

Brent holds a B.Sc. from Dalhousie University and an MBA from McMaster University.

**Benjamin Kinder**

Benjamin Kinder is a Director at MPA. In this role he is responsible for transaction execution, financial advisory and capital raising services.

Since joining MPA in 2009, Ben has focused on advising clients in public and private mergers, acquisitions and divestiture transactions, and has acted as an expert witness.

Prior to joining MPA, Benjamin spent two years in Scotia Capital's investment banking and equity capital markets divisions. While there, he focused on the communications, media and technology sectors, advising clients on mergers and acquisitions, and capital markets transactions.

Benjamin holds a Bachelor of Business Administration (B.B.A.) from York University's Schulich School of Business, a Master of Arts (M.A. Cantab.) in law from the University of Cambridge.

**John Park**

John Park is an Analyst at MPA. In this role he is responsible for research, modeling, and assisting with transaction, execution services.

Prior to joining MPA, John served as an analyst in the business development department of a major Canadian corporation.

John holds an Bachelor of Business Administration (B.B.A.) from the Ivey School of Business at Western University.

## **Appendix I – Statement of Qualifications & CV of Pelino Colaiacovo**

### Pelino Colaiacovo – Statement of Qualifications

Pelino Colaiacovo has been a Managing Director at MPA Morrison Park Advisors Inc. since 2005. He focuses on the utility, electricity and infrastructure sectors, as well as Crown Corporations and green technology more broadly. He advises corporate, government and not-for-profit clients on mergers and acquisitions transactions, the raising of new capital, the valuation of corporations and major assets, and the financial fairness of proposed transactions or initiatives to various stakeholders. As part of this work, he has built hundreds of financial models and analyzed the financial impacts and sensitivities of scenarios too numerous to count. He tracks the view of the capital markets on initiatives and developments in the utilities, power and infrastructure sectors, and provides advice and assistance to clients that must interact with the capital markets. He regularly speaks at and participates in conferences, roundtables and industry associations with respect to energy policy development, and the likely financial impact on utility companies of new policies, technologies and financial developments. He has provided advice to several governments about energy policy.

Before joining MPA, he served as the Chief of Staff to the Ontario Minister of Energy, and was integrally involved in a large number of significant reforms to the electricity industry in that province. Prior to that he was a consultant to a wide variety of domestic and international companies and industry associations on energy and other policy issues.

Pelino appeared before the Manitoba PUB in 2014 as part of the NFAT process, and provided a view on the fairness of the NFAT to Manitoba ratepayers, and also commented on the financial viability of Manitoba Hydro's plan. He also appeared before the Nova Scotia Utilities and Review Board in 2013 on the fairness of the Maritime Link Project to ratepayers in that province (and is currently in the process of participating in the NSUARB review of the Maritime Link project to date).

PILC will rely on his expertise in financial modeling, capital markets, electricity planning and policy to comment on the financial and intergenerational consequences of Manitoba Hydro's GRA.

## Pelino Colaiacovo, Managing Director

### Professional Profile

- Well-known participant in the Ontario electricity sector
- Deep understanding of the Canadian utilities, energy, infrastructure and greentech sectors
- Over 20 years of experience in investment banking, government, corporate strategy, policy development, consulting

### Professional Experience

August 2005 – Present

Managing Director, MPA Morrison Park Advisors Inc.

- MPA is an employee-owned independent investment bank focusing on mergers & acquisitions, capital raising, and other strategic advisory services to public and private companies, as well as governments, crown corporations, regulators and not-for-profit enterprises (note that MPA's name pre-2007 was Energy Fundamentals Group)
- As Managing Director and Shareholder, responsibilities include marketing, client origination, transaction analysis, senior counsel, and transaction execution

October 2003 – August 2005

Chief of Staff, Office of the Ontario Minister of Energy

- Most senior advisor to the Minister
- Managed Minister's staff of 12

July 1993 – October 2003

Various Positions, GPC International

- Consulting firm providing policy analysis, government relations, public affairs, public relations, corporate communications and management consulting services
- Positions held in Toronto, Ottawa and Washington DC
- Progress from junior consultant to Vice President and Practice Leader
- As Practice Leader, managed both a permanent team, as well as flexible multidisciplinary teams for individual client campaigns

### Education

1993 Bachelor of Laws, University of Toronto

1990 Honours Bachelor of Arts, University of Toronto (International Relations and Economics)

## Detailed Experience

August 2005 – Present

Managing Director, MPA Morrison Park Advisors Inc.

- Focus on utility and energy sector clients, and to a lesser extent on infrastructure projects, crown corporations, and greentech (MPA also covers mining, technology, real estate and public company M&A)
- Advisor to the Alberta Electric System Operator: Capital market consequences of transition to Coal Exit and Capacity Market
- Financial Advisor to PowerStream in its merger with Horizon Utilities, Enersource and Hydro One Brampton to create Alectra Utilities
- Expert Witness for and consultant to the Public Utilities Board of Manitoba: Commercial valuation of Manitoba Hydro's multi-billion dollar plan to build new hydroelectric facilities and export-focused transmission lines
- Expert Witness for and consultant to the Nova Scotia Public Utilities Board: Commercial valuation of the proposed Maritime Link interprovincial electricity transmission line
- Report to the Market Surveillance Administrator of Alberta on the commercial viability of new electricity generation facilities in the Alberta competitive electricity market
- Advisor to British Columbia Transmission Co (now part of BC Hydro) with respect to proposed new transmission lines to the United States and Alberta
- Financial Advisor to the City of Toronto with respect to the sale of the City's minority interest in Enwave
- Financial Advisor to the City of Toronto with respect to the proposed financing for and development of the Tower Renewal energy conservation program
- Numerous assignments as financial advisor to electricity distribution companies with respect to financial valuations, strategic reviews and mergers & acquisition opportunities (e.g., Milton Hydro, Oshawa PUC, Woodstock Hydro, Enwin Utilities, Oakville Hydro, Hydro One)
- Numerous assignments as financial advisor to buyers and sellers of renewable energy generation assets (wind, solar and hydroelectric) and district energy facilities
- Numerous assignments as financial advisor to project developers raising capital for new energy and infrastructure projects, and/or bidding into competitive procurement processes
- Energy policy and strategy advisor to the Ontario Energy Association
- Typically, clients are Boards of Directors of public companies, or senior management of private companies or government entities
- Numerous presentations before City Councils, utility regulators, and other public bodies
- Speeches and appearances at energy conferences and roundtables, guest lectures at university courses on energy policy and utility regulation, expert opinion resource for media

October 2003 – August 2005

Chief of Staff, Office of the Ontario Minister of Energy

- Principal political and policy advisor to the Minister
- Primary liaison with the Office of the Premier and with the public service
- Managed Minister's staff of 12

Final decision-maker for the Minister's public communication and stakeholder interaction

- Key accomplishments included:
  - Restructuring of the Ontario electricity sector through the passage of Bills 11 and 100
  - Development of a detailed plan to retire Ontario's coal-fired electricity generation fleet
  - Development of a smart metering strategy for Ontario
  - Creation of the Ontario Power Authority, selection of Board, appointment of CEO
  - New Board and senior management for Ontario Power Generation, new Board for the Independent Electricity System Operator
  - Review and approval of proposed refurbishment of Pickering A 1 nuclear unit
  - Negotiation of Bruce A nuclear refurbishment
  - Successful Requests For Proposals for new renewable energy facilities, and new gas-fired electricity generation plants

July 1993 – October 2003

Various Positions, GPC International

- Vice President and Corporate Practice Group Leader, Toronto
- Vice President responsible for integration of acquired offices in the United States, including Boston and Washington DC
- Senior Consultant, Ottawa
- Consultant, Toronto
- Focus on regulated sectors of the economy, including energy, transportation, media, healthcare and finance
- Leader of multi-disciplinary public affairs projects including policy development, government relations, media relations, stakeholder communications and polling
- Management consultant for large national and multi-national corporations with respect to public affairs



## Appendix J – MPA Duties

The following duties were assigned to Morrison Park Advisors in the Manitoba Hydro 2017/18 and 2018/19 General Rate Application.

The Public Interest Law Centre on behalf of the Consumers Coalition, and the Manitoba Industrial Power Users Group (MIPUG), jointly retained the services of Morrison Park Advisors to assist with their participation in the Public Utilities Board review of Manitoba Hydro's Application on issues related to financial targets / capital structure, debt and debt management, and risk and uncertainty analysis.

Morrison Park Advisors' duties include:

- Reviewing the application, evidence and historical information;
- Modelling, on a very limited basis, the potential impact on Manitoba Hydro of further unplanned capital expenditures, and compare the same to other possible risks;
- Researching and benchmarking of alternatives;
- Researching and comparing the debt management strategies of comparable utilities, particularly with respect to the issue of shorter term maturity;
- Modelling; on a very limited basis, the varying impacts on customer rates over time of different financial targets, strategies, debt management plans and risks, including the use of different rate implementation strategies (i.e., higher earlier, steady increases use of "emergency" increases, etc.) and considering the impact of these various scenarios on access to capital and the Province of Manitoba;
- Preparing first and second rounds of Information Requests;
- Reviewing Information Request responses;
- Preparing a report to the Public Utilities Board;
- Responding to Information Requests, if necessary; and
- Preparing for and appearing before the Public Utilities Board, if necessary.

Morrison Park Advisors' retainer letter includes they are to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within their area of expertise; and
- to provide such additional assistance as the Public Utilities Board may reasonably require to determine an issue.

Morrison Park Advisors' retainer letter also includes that their duty in providing assistance and giving evidence is to help the Public Utilities Board. This duty overrides any obligation to the Consumers Coalition and MIPUG.